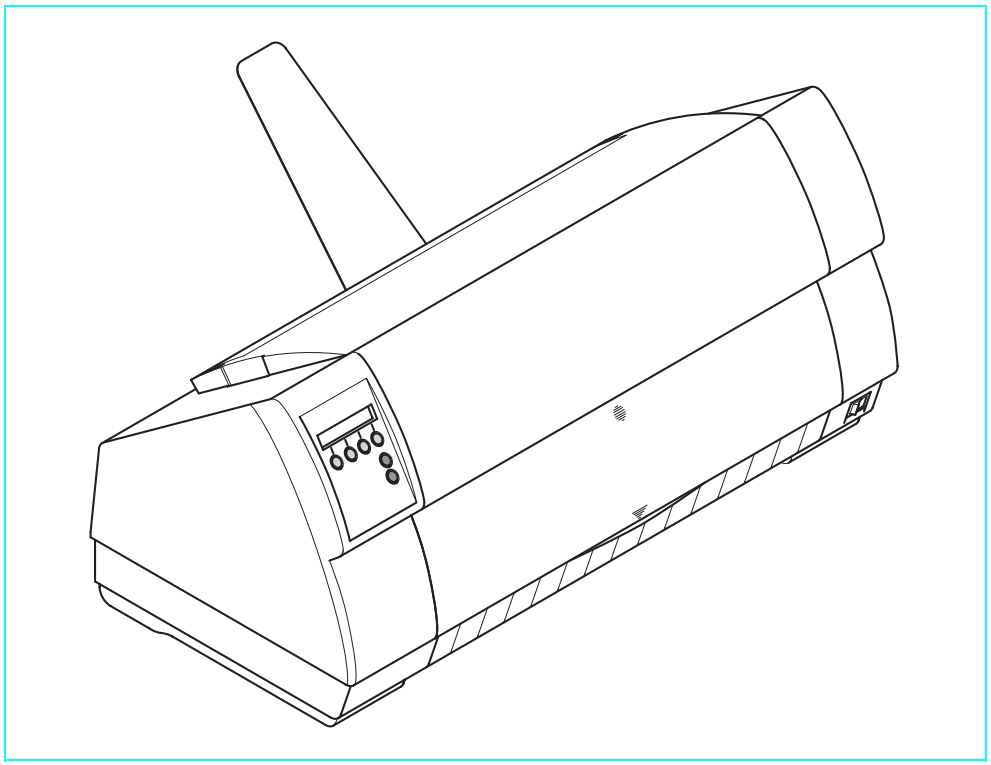
Tally

T2040

T2140

Reference manual Matrix printer



BACK PRINT ? QUIT

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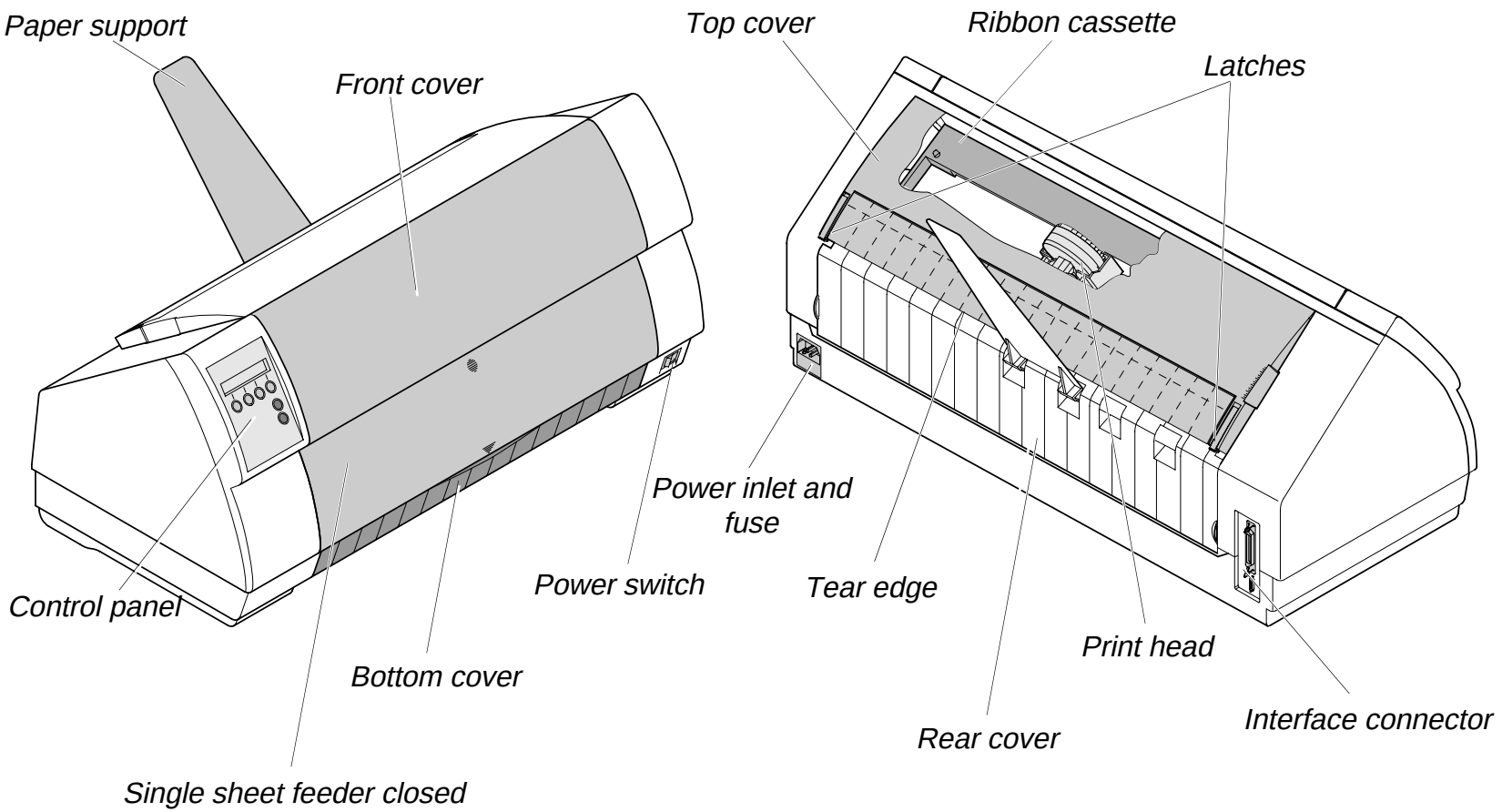
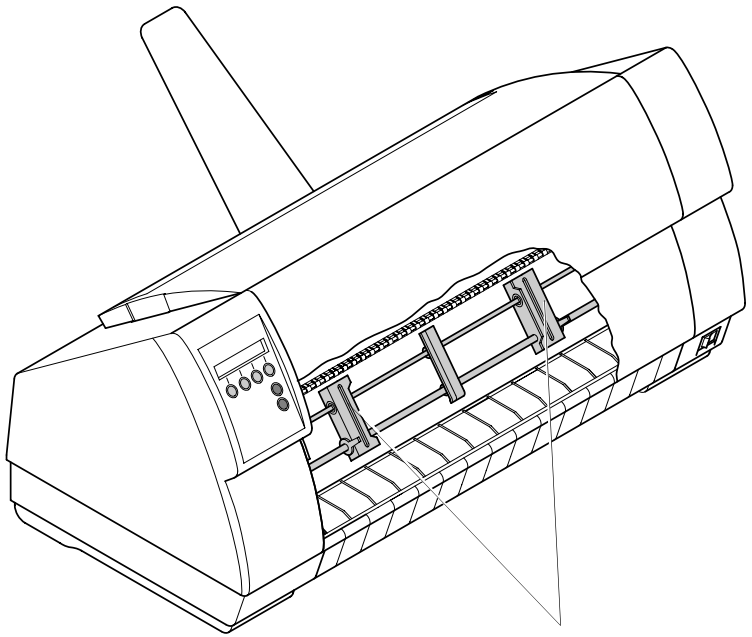
Printer at a glance

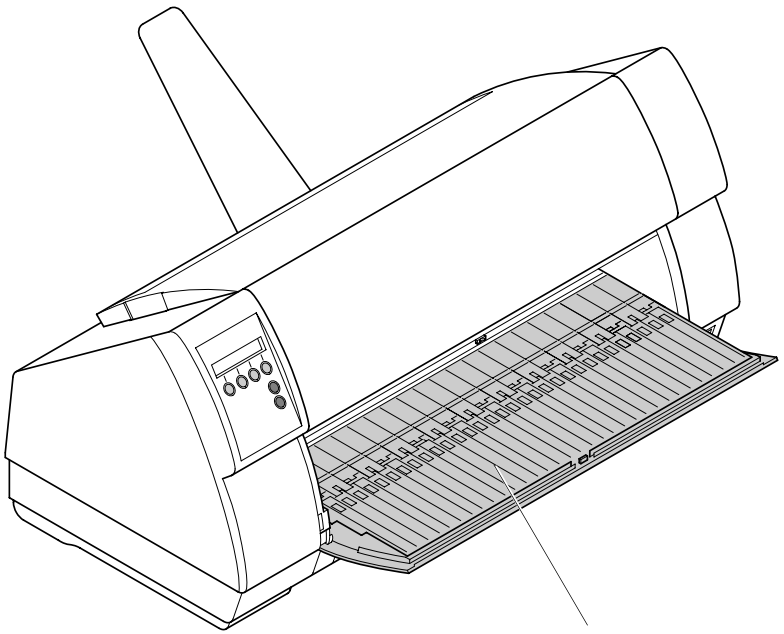


Printer in fanfold paper mode



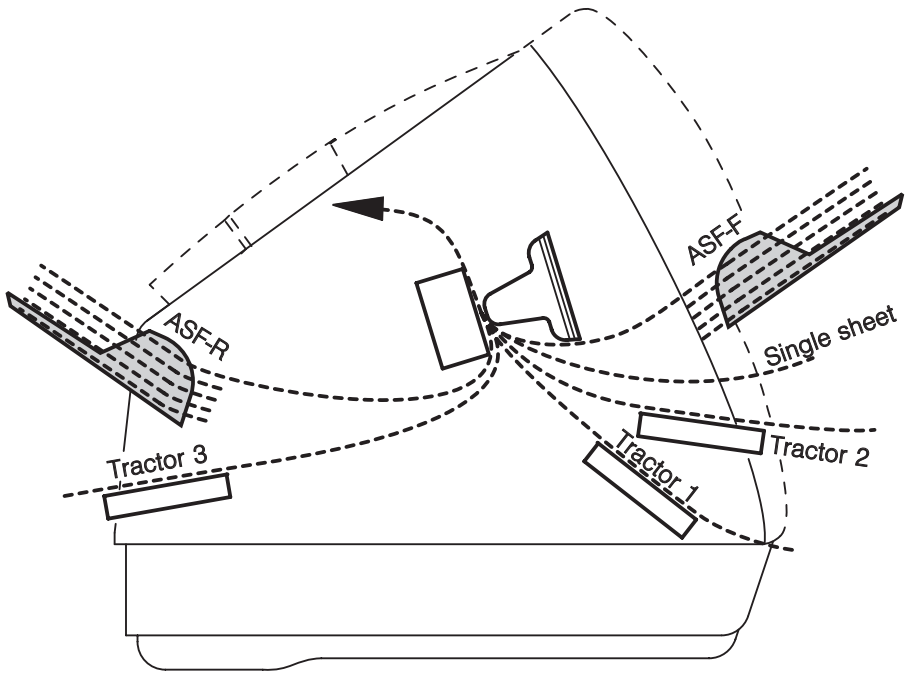
Tractor 1

Printer in single sheet mode



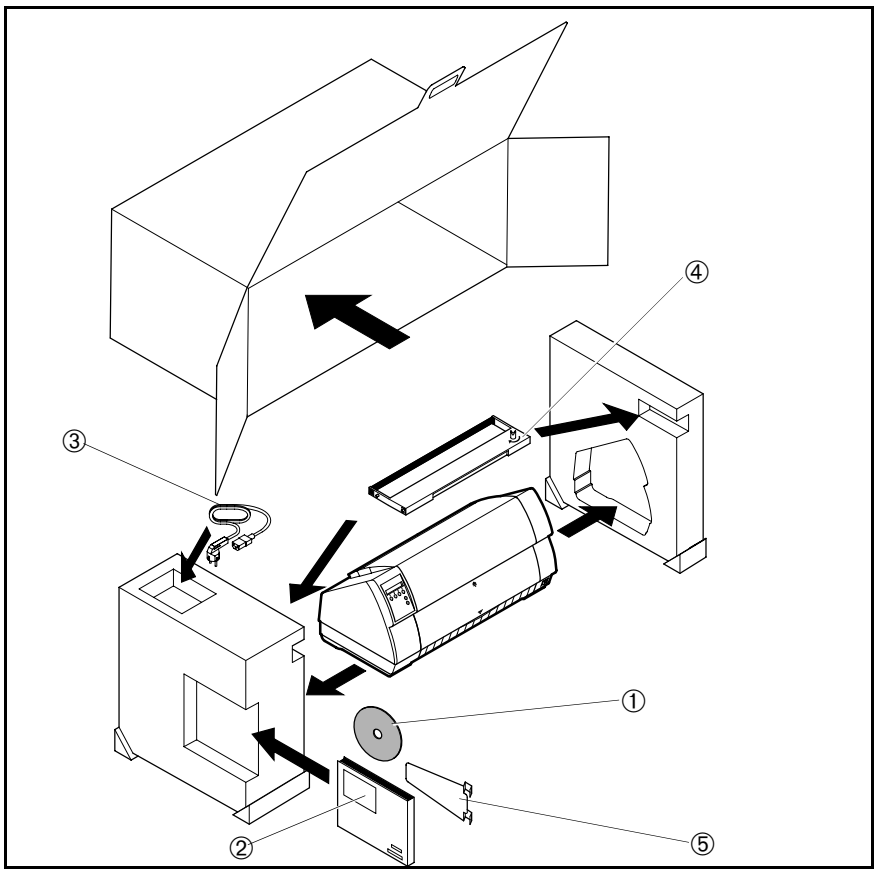
Single sheet feeder open

Paperways



Installation

➤ Unpacking the printer



Place your printer on a solid base (see *Placing your printer*).

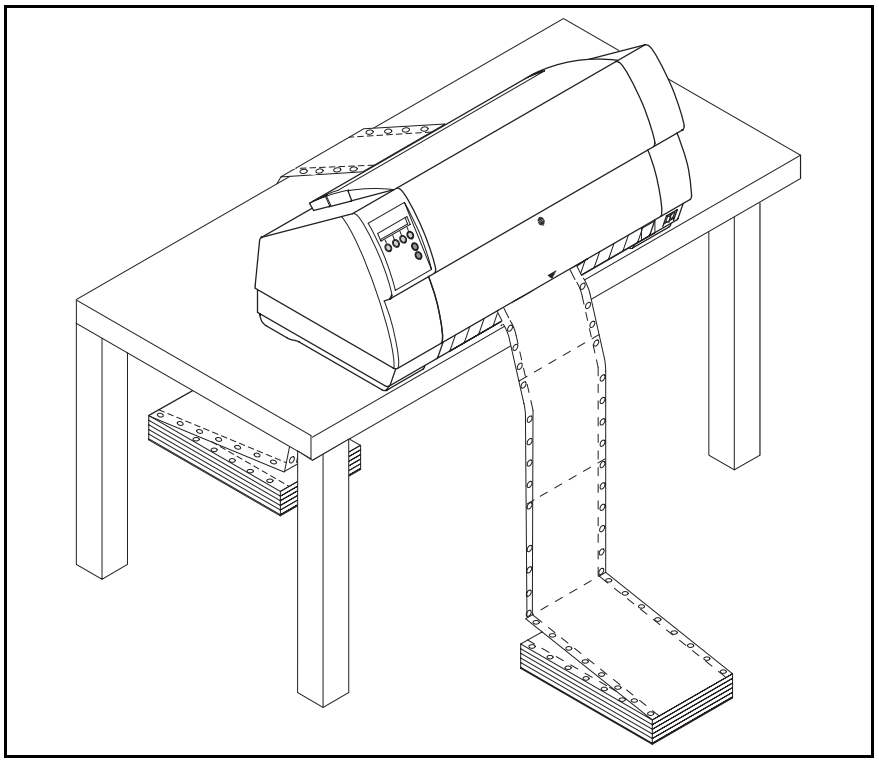
Make sure that the “Up” symbols point to the correct direction.

Open the packaging and take out the ribbon cassette. Pull the printer out of the cardboard box towards you and remove the remaining packaging material.

Check the printer for any visible transport damage and completeness. Apart from this CD-ROM (①), the Operator’s Manual (②), the power cable (③), the ribbon (④) and the paper support (⑤) must be included.

If you find any transport damage or if any accessories are missing, please contact your dealer.

Placing your printer



Place the printer on a solid, flat and non-slip surface in such a way that it cannot fall down. Make sure to facilitate access to the control panel and the paper input trays and to leave sufficient space for the paper ejected.

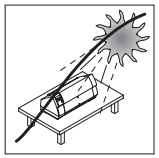
STOP

The power supply cable may be damaged if the paper edges constantly chafe the insulating sheath. The user must always ensure that there is sufficient distance between the power supply cable and the paper.

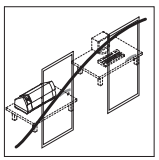
When selecting the printer location, observe the following additional instructions:

STOP

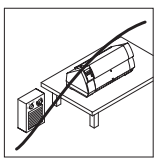
Never place the printer in the vicinity of easily inflammable gas or explosive substances.



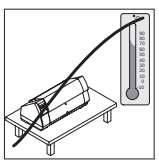
Do not expose the printer to direct sunlight. If you cannot avoid placing the printer near a window, protect it from the sunlight with a curtain.



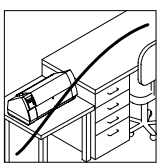
When connecting the computer with the printer, make sure not to exceed the permitted cable length (see *Technical specifications*).



Ensure sufficient distance between the printer and any heating radiators.

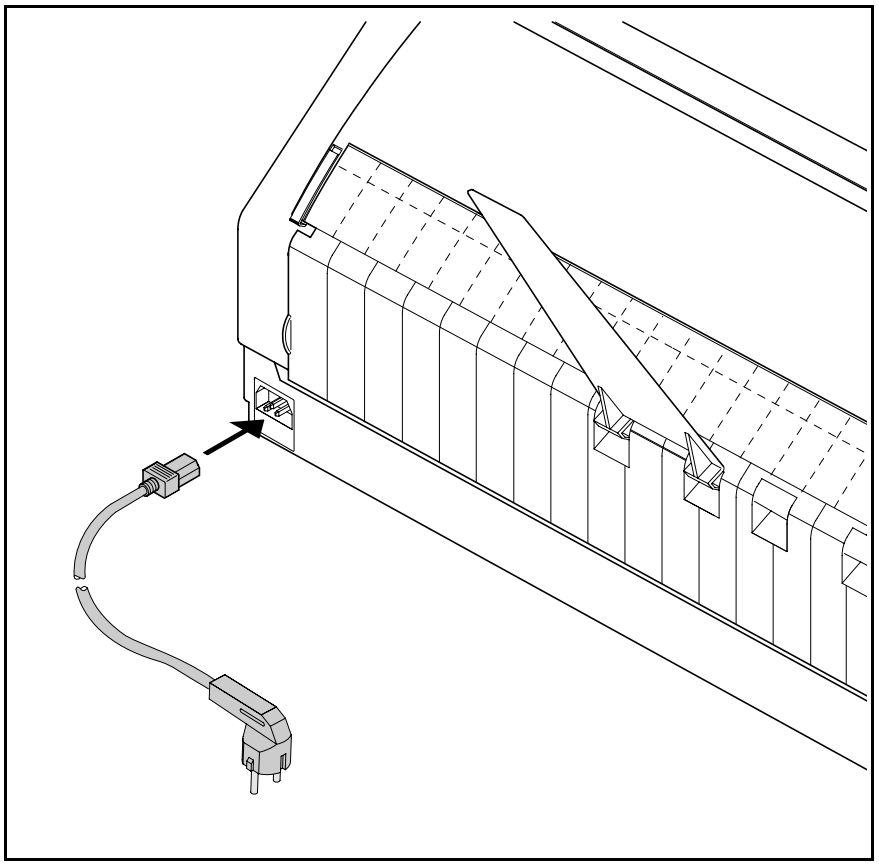


Avoid exposing the printer to extreme temperature or air humidity fluctuations. Protect the printer from dust.



It may be recommended to install the printer in a place which is acoustically isolated from the workplace because of the noise it may produce.

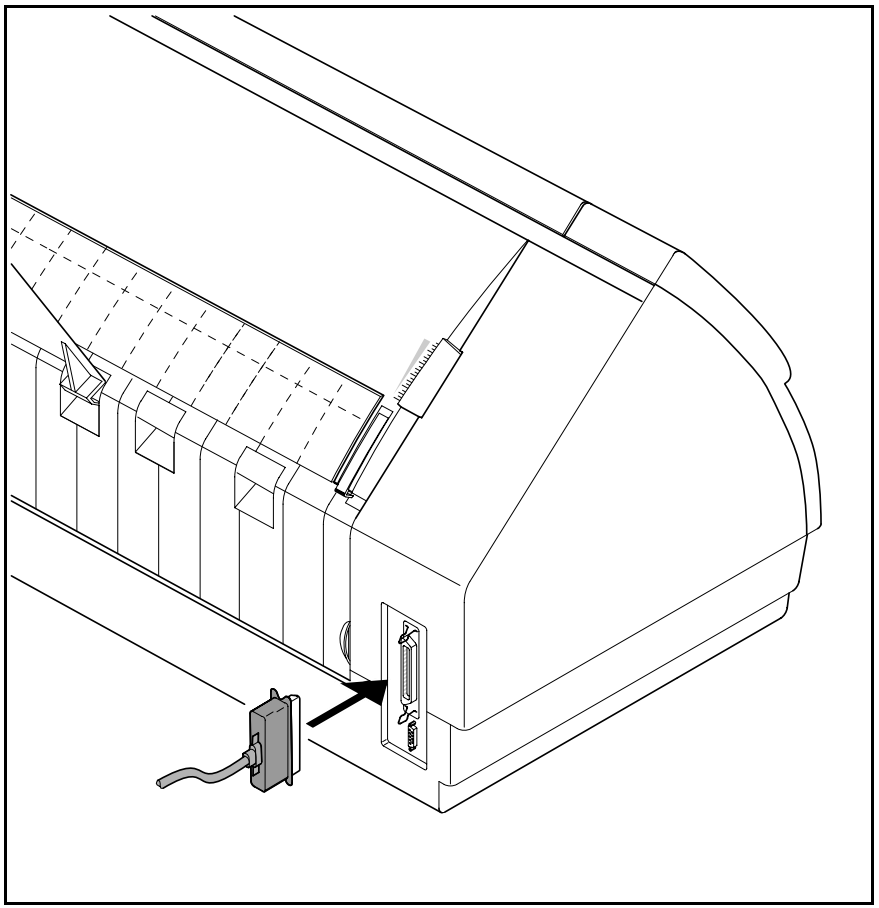
Connecting the printer



STOP

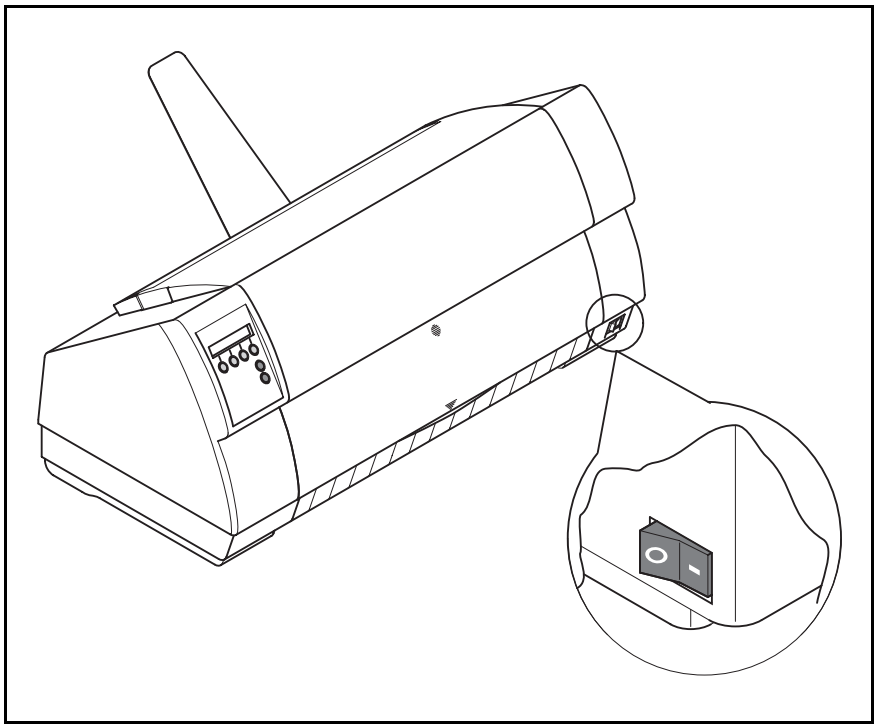
Make sure that the device has been set to the correct voltage (e.g. 220–240 V in Europe, 120 V in the USA). To do this, check the type plate above the power inlet at the back of the printer. Contact your dealer if the setting is incorrect. Never switch on the printer if the voltage setting is incorrect, since this may result in severe damage.

Connect the power cable to the power inlet of the printer. Connect the power cable plug to a mains socket.



Make sure that the printer and the computer are switched off and connect the data cable between the printer and the computer.

Switching on the printer



The power switch for switching on the printer is located at the front bottom right of the printer.

The control panel

The control panel with its keys is used for controlling your work with the printer. The control panel is located on the front left side of your printer and consists of a two-line LC display and six keys.

The functions of the keys depend on the printer's current mode (status). There are four basic modes.

The *Online mode* is the printer's normal operating status. Data from your computer can be received and printed.

In the *Offline mode* the link between printer and computer is interrupted, i.e. no data can be received and printed.

In the *Setup mode* you can either select the printer menu or carry out the so-called quick-switch function. The quick-switch option was included so that you can change the most important parameters (adjustments, character density, font, paper path, adjustments i.e. head gap) directly without having to enter them via the menu. The character density and font parameters can also be set permanently in the printer menu mode.

In the *Menu mode* further printer settings (line spacing, size of the interface buffer etc.) can be altered and saved permanently.

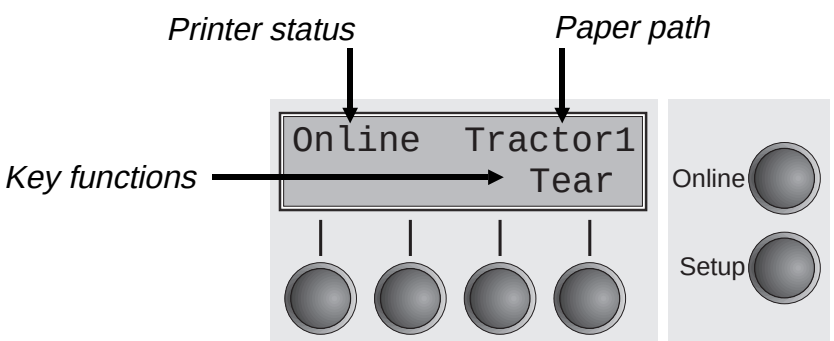
The LC display

The LC display tells you all the important printer settings and informs you which functions are currently assigned to which keys.

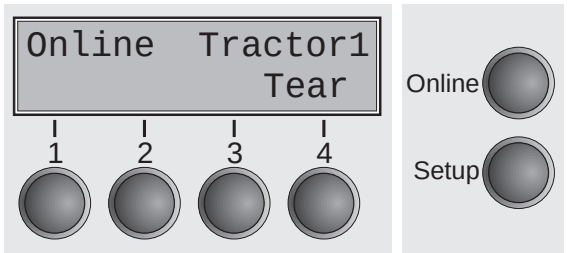
In Normal mode the upper line tells you the printer's status (*Online* or *Offline* mode – in the example below the printer is in the Online mode), and the selected paperpath (below: **Tractor1** = tractor mode).

The second line informs you which functions are currently assigned to which keys. The word or symbol directly above a key tells you the current function of the key. In our example the right key is assigned with the Tear function. If you were to press this key the loaded fanfold paper would be advanced to the tear position.

Example:



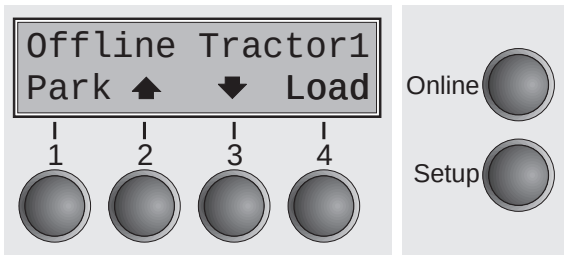
Online mode



After switching on, the printer is automatically set to online mode. Only in this mode it can receive data from the computer.

- **Tear** key (4):
  Activates the tear function when fanfold paper is loaded
  (see *Moving the paper to the tear position*).
  If **Load** is displayed above this key, no paper is loaded in the printer;
  press the key to feed paper to the printing position.
- **Setup** key:
  Sets the printer to setup mode.
- **Online** key:
  Sets the printer to offline mode.

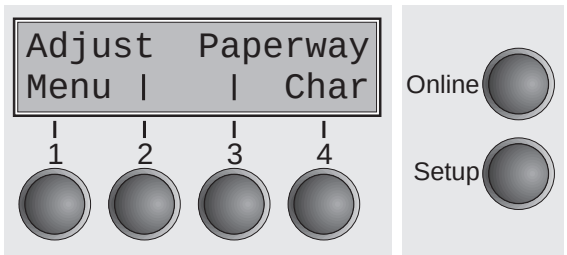
Offline mode



Only in this mode it is possible to perform step, line, or form feeds from the control panel (see *Paper transport*); however, data cannot be received.

- **Park** key (1):
  Clears the paper path with paper loaded and activates paper path quick selection (see *Changing the paper type*).
- Key ▲ (2):
  Short keypress: Microstep forward.
  Long keypress: Continuous paper feed.
- Key ▼ (3):
  Short keypress: Microstep reverse.
  Long keypress: Continuous paper reverse feed up to the park position.
- **Load** key (4):
  Loads paper from the selected paper source; the display changes to **LF/FF**.
  LF/FF key:
  Short keypress: Line Feed (**LF**)
  long keypress: Form Feed (**FF**).
- **Setup** key:
  Sets the printer to setup mode.
- **Online** key:
  Sets the printer to online mode.

Setup mode



In this mode, the following settings are available:

- **Setup** key:
  Sets the printer to setup mode, in which the following settings can be selected:
- **Menu** key (1):
  Other menu settings.
- **Adjust** key (2):
  Setting the tear position, first printing line and print head gap.
- **Paperway** key (3):
  Paper path.
- **Char** key (4):
  Font and number of characters per inch.

Access to the other menu settings is disabled by the manufacturer. For information on how to enable access and about the available settings, refer to the chapter *The menu*.

Messages in the LC display

If the printer detects an internal fault or user error or if it expects you to do something, a message will appear in the LC display. Below you will find a list of messages with brief descriptions of each message. The messages are described in greater detail in the chapter *Troubleshooting*.

Message	Meaning
`Eject error`	The printer cannot eject paper / advance it to park position.
`Hardware Alarm`	Internal hardware error / print head blocked.
`Head hot`	The printer reports that the print head is hot and that print speed will be reduced.
`Initializing`	This message appears during the printer's initializing phase.
`Load error`	The printer cannot draw in the loaded paper.
`Loading default`	Indicates that the printer is being initialised and is carrying out the internal self-test immediately after turning on the printer. Factory defined parameters will be reloaded in all available menues.
`Out of paper`	The printer has detected paper end during operation / printer was switched on with no paper loaded.
`Parity error`	A parity error during data transmission is indicated.
`Press any key`	The user is requested to press any key.
`Tear Paper off`	The user is requested to tear off paper which has been advanced to the quick tear edge.

Key functions when turning on the printer

You can activate one of the functions below by keeping the corresponding key or key combination pressed while turning on the printer:

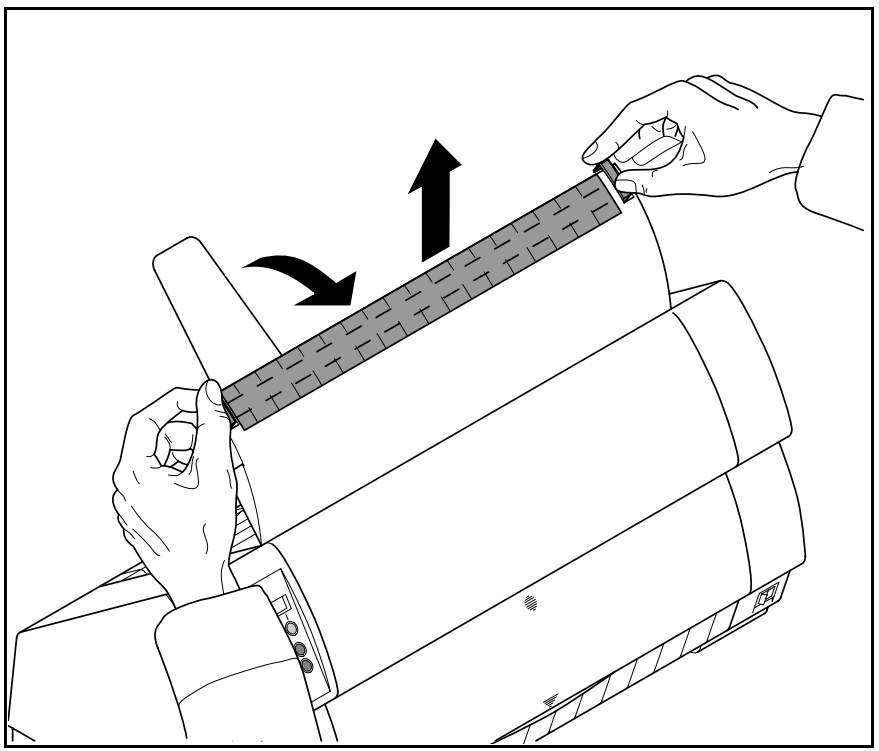
If you keep the **Online** key depressed while turning on the printer, you enter the printer's Self-Test mode. The Self-Test mode is described in the section *Test functions* of this manual.

If you keep the **Setup** key depressed while turning on the printer, you regain access to the printer menu if you had locked it before with the help of the MenLock function. The **MenLock** function is described in the *Menu description table* at the end of this chapter.

If the **four function** and **select keys** are depressed simultaneously while turning on the power, all printer settings are reset to the default values (except the Form length setting in *Test mode*).

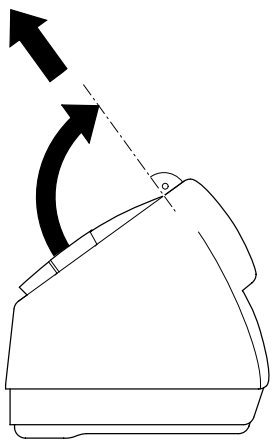
Changing the ribbon cassette

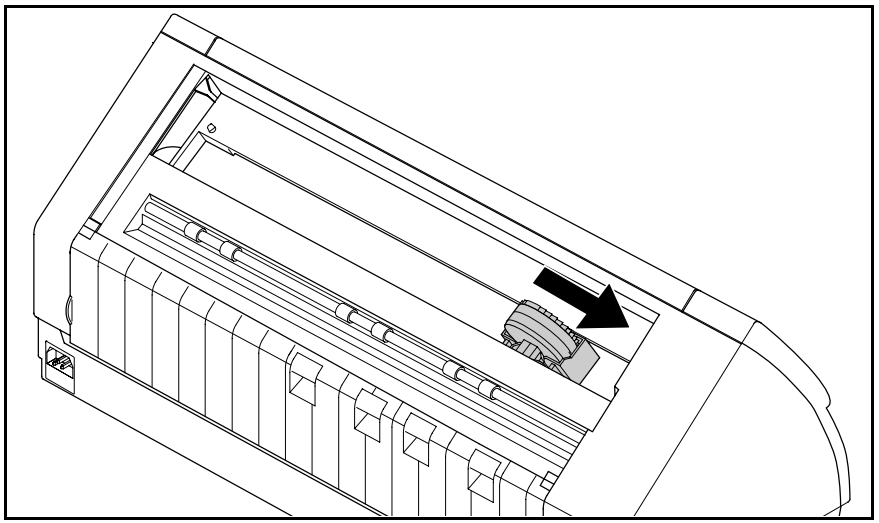
The ribbon consists of a dense synthetic fabric saturated with ink. When printing, the needles hit the ribbon and transfer the ink particles on to the paper. After printing several million characters, the ink is consumed and the fabric worn out.



Remove all the paper from the printer and make sure that the printer is switched off before opening the cover.

Press the two slide latches, raise the top cover to an angle of 90 degrees relative to the top cover of the printer and remove it.

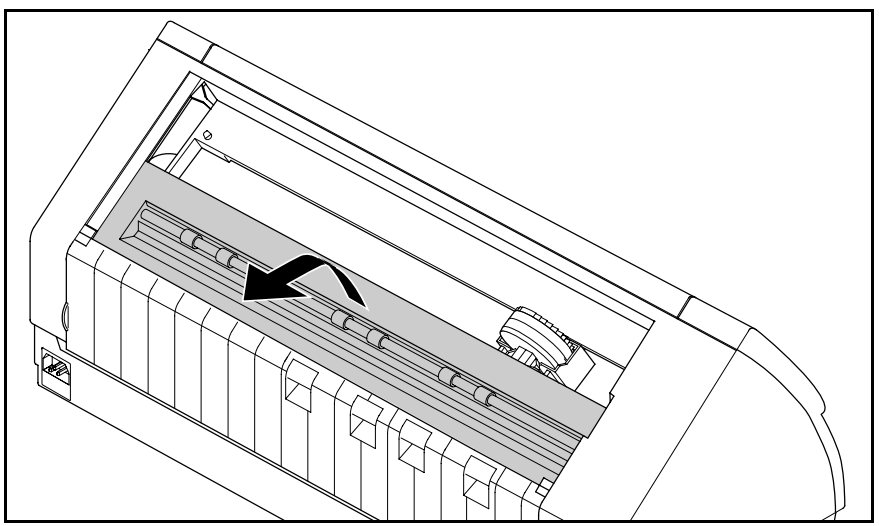




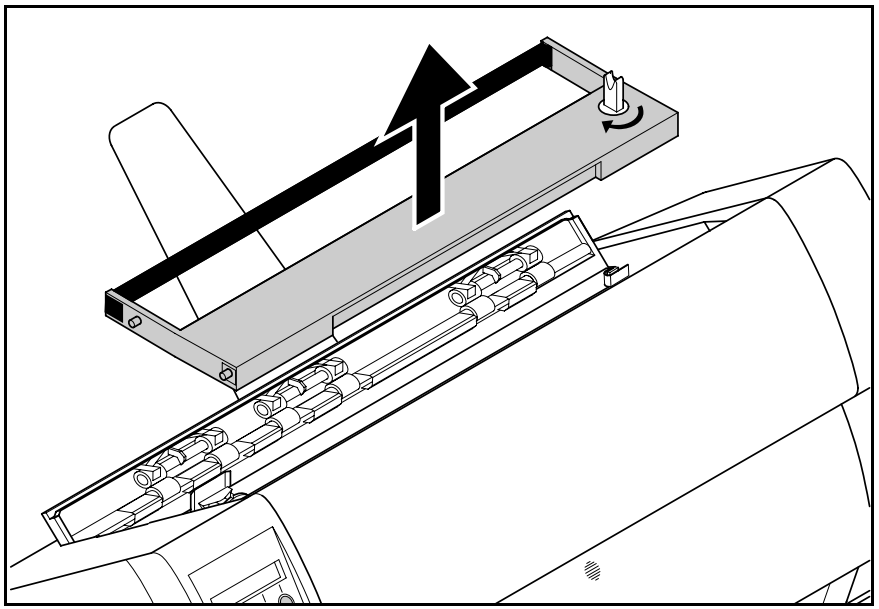
Cautiously slide the print head carriage to the left stop (viewed from the printer front).

STOP

The print head becomes hot during printing. You should therefore let it cool down for some time before touching it.

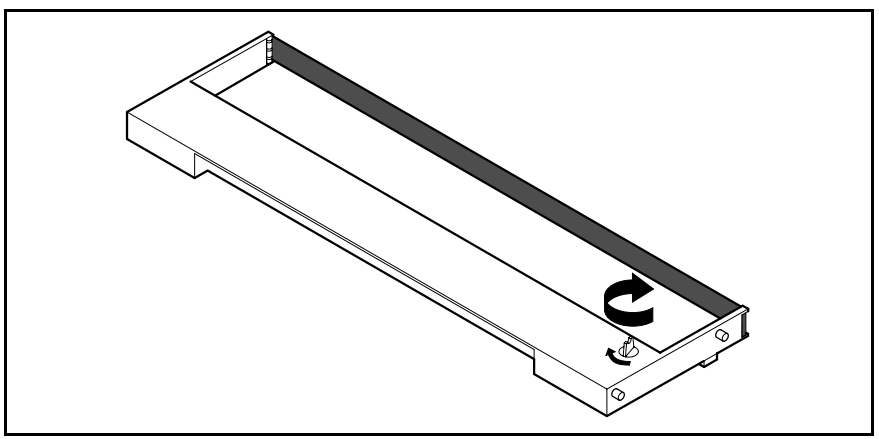


Raise the printer bar cover.

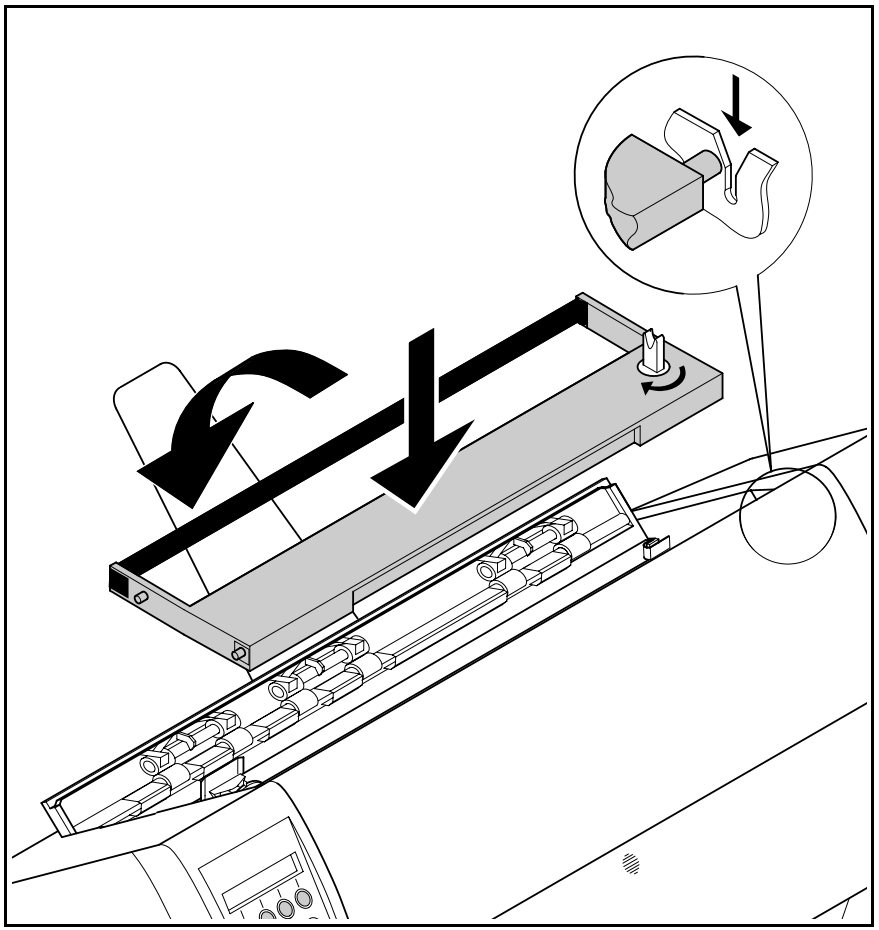


Remove the used cassette.

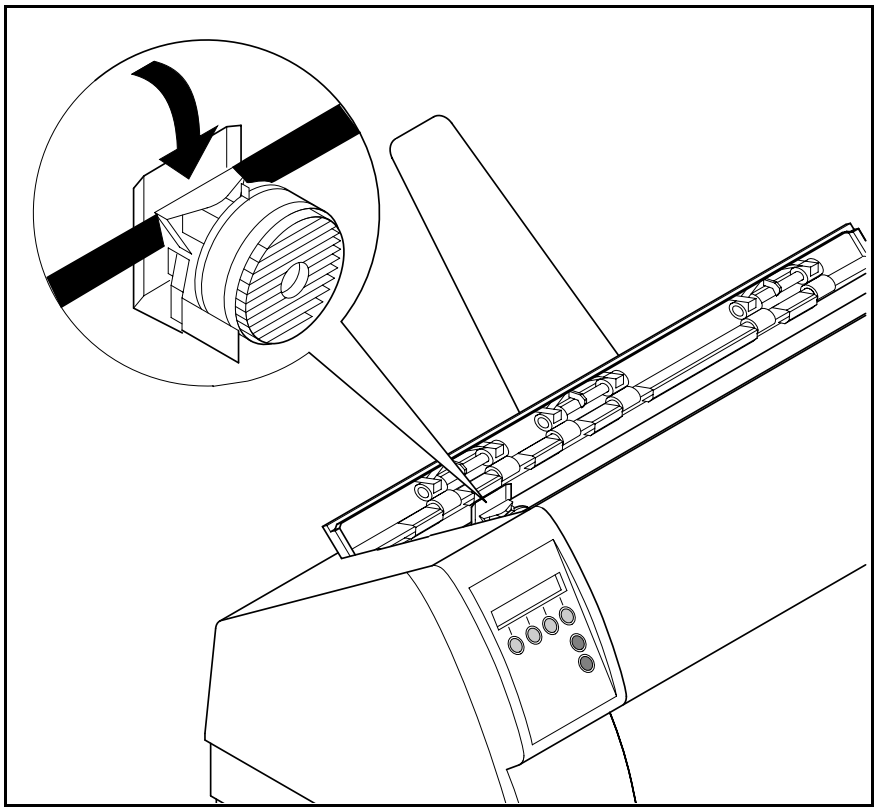
We recommend use of genuine ribbon cassettes only.



Turn the coloured ribbon feed knob at the right of the new ribbon cassette in the direction of the arrow in order to take up slack of the ribbon.



Slightly tilt the ribbon cassette forwards in such a way that it is parallel to the housing top and thread in the ribbon in front of the print head. Locate the two projections in the left and right guide rails of the printer and gently press down on both sides until it clicks into place. In this way, the cartridge is automatically positioned correctly.



Use the knob on the right side of the cassette to take up slack of the ribbon again. Thereby the ribbon will slide over the plastic noses on the left and right of the print head into the correct positon.

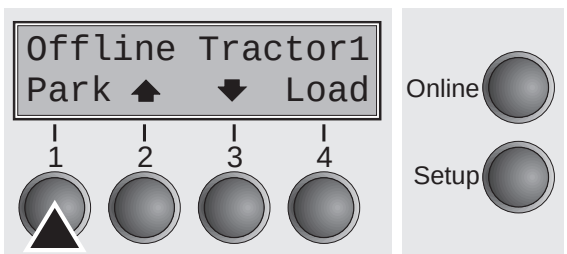
Press the printer bar cover down until it clicks into place, remount the top cover, making sure that the projections on the cover are inserted correctly into the recesses of the printer housing, and close it.

Settings (I)

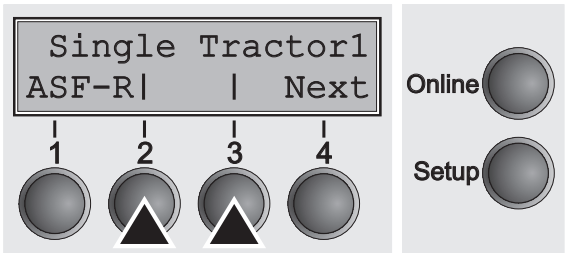
This section describes how to set the paper type, the character density and the fonts.

Paper path quick selection

You can change the paper type either from an application program, by means of the paper path quick selection feature or in the Setup menu. In this section, the quick selection feature is described; for detailed information on how to make this setting via the Setup menu, refer to the section *The menu*.



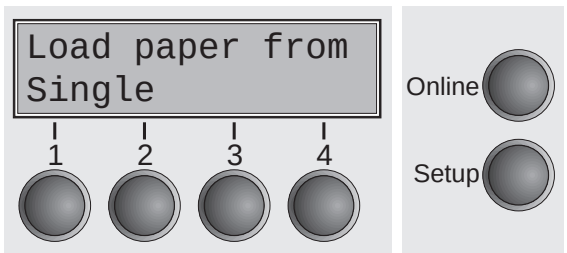
Make sure that the printer is in offline mode; press the **Online** key, if necessary.
Press the **Park** key and follow the messages in the display. If fanfold paper is loaded in the printer, it is fed to the tear position. The text **Tear paper off** appears in the display. After tearing off paper, press any key. If a single sheet is loaded in the printer, it is ejected.



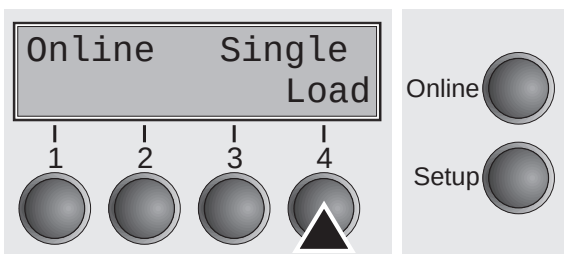
Use one of the marked keys to select the desired paper path, for example, **Single**.

If the printer has the standard paper sources only (single sheet and tractor 1), please select from these only. If you do not make a selection within 5 seconds, the menu is closed.

The display alternates between the basic menu and the menu in the following figure:



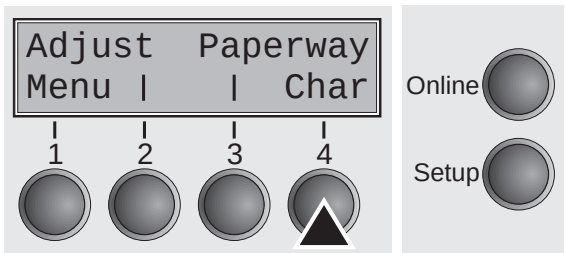
Insert a single sheet (for the procedure, see *Loading paper*).



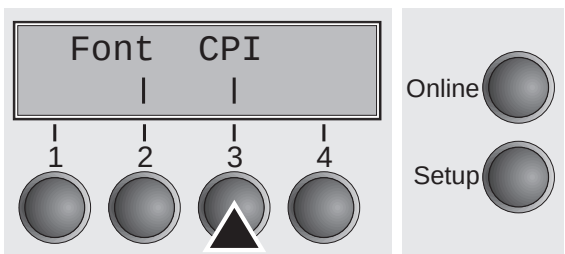
Press the **Online** key to set the printer to ready status. When the printer receives data from the computer, the single sheet is automatically loaded. Press the **Load** key to load the single sheet before starting the printout.

Selecting character density and font temporarily

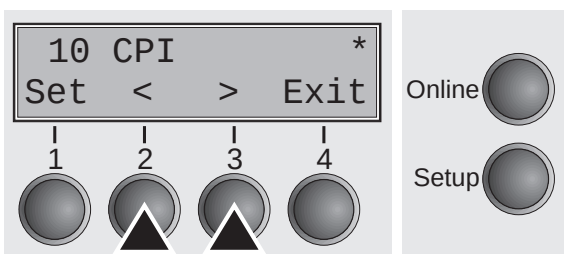
You can use the **CPI** key in setup mode to select the number of characters per inch to be printed. You can use the **Font** key to select fonts.



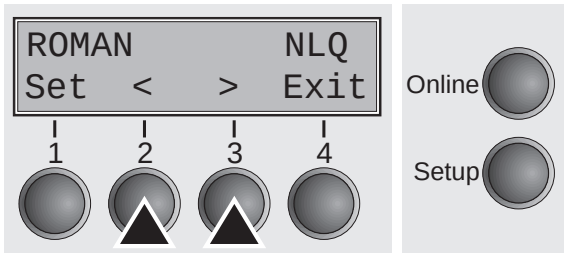
Press the **Setup** key, then the **Char** key.



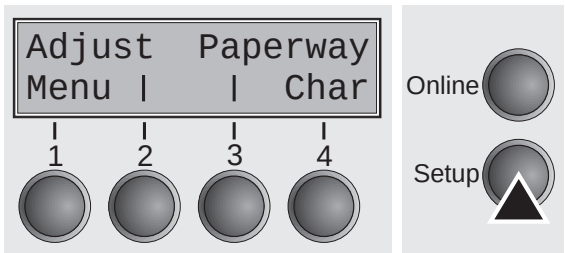
Press the **CPI** or **Font** key (in our example, press **CPI**).



Use the **<** or **>** key to set the desired character density. Confirm the selection by pressing the **Set** key.
You can cancel the selection and leave the setting unchanged by pressing the **Exit** key.



If you pressed the **Font** key, use the **<** or **>** key to select the desired font. Confirm the selection by pressing the **Set** key.
You can cancel the selection and leave the setting unchanged by pressing the **Exit** key.



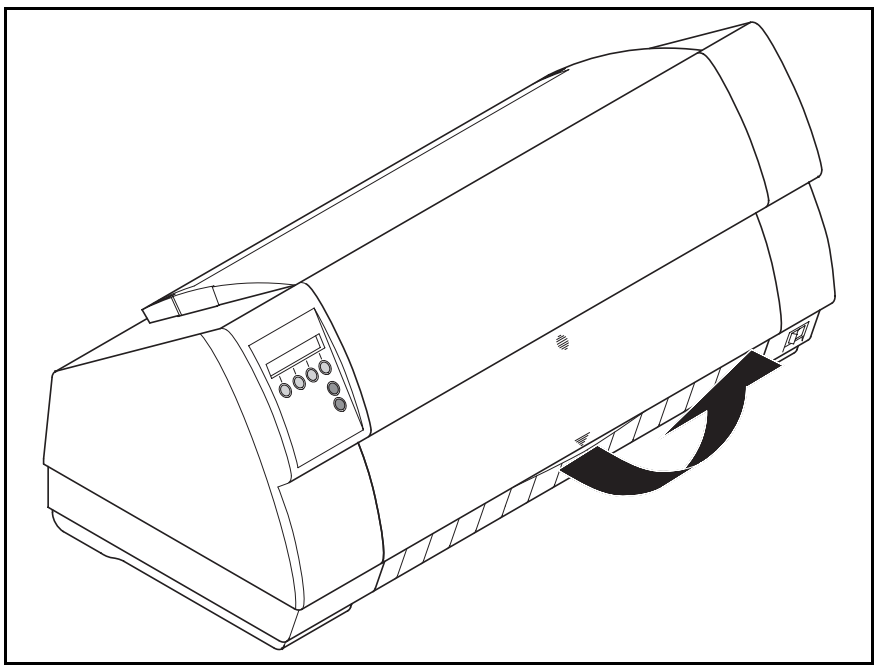
Press the **Setup** key. The printer is reset to the initial status. It is also possible to press the **Online** key. The printer then changes directly to online mode.

The selection made is not retained after switching off the printer. For details on the permanent setting of the character density, refer to chapter *The menu*.

Loading paper

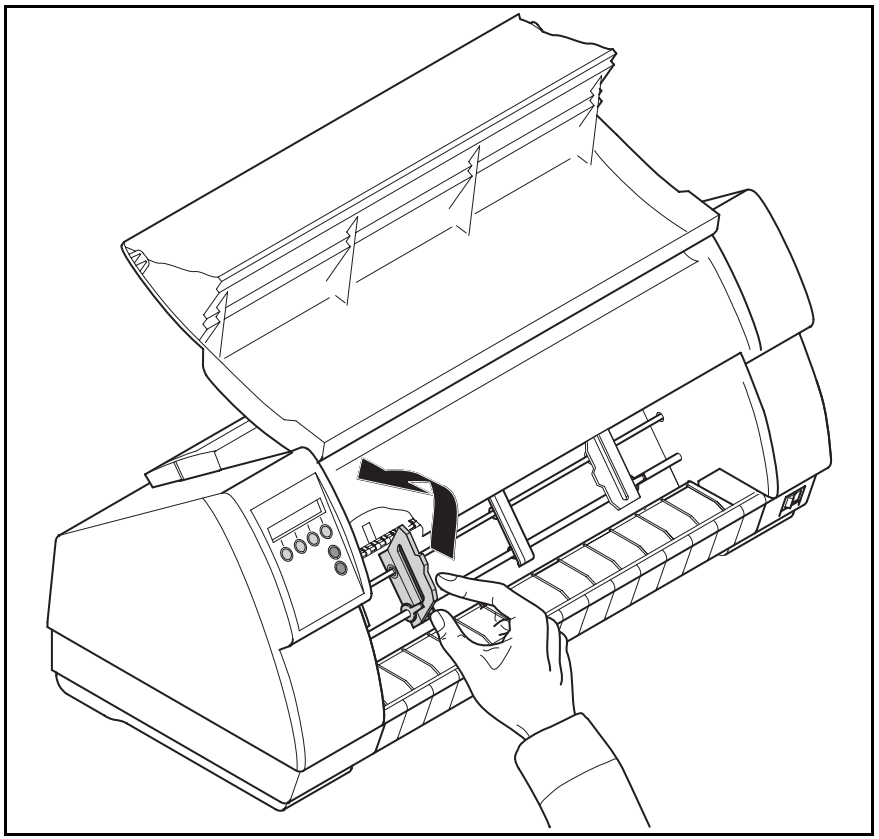
Your printer can print both fanfold paper and single sheets. For information on the paper sizes you can use, please refer to the chapter *Technical specifications*).

➤ Fanfold paper



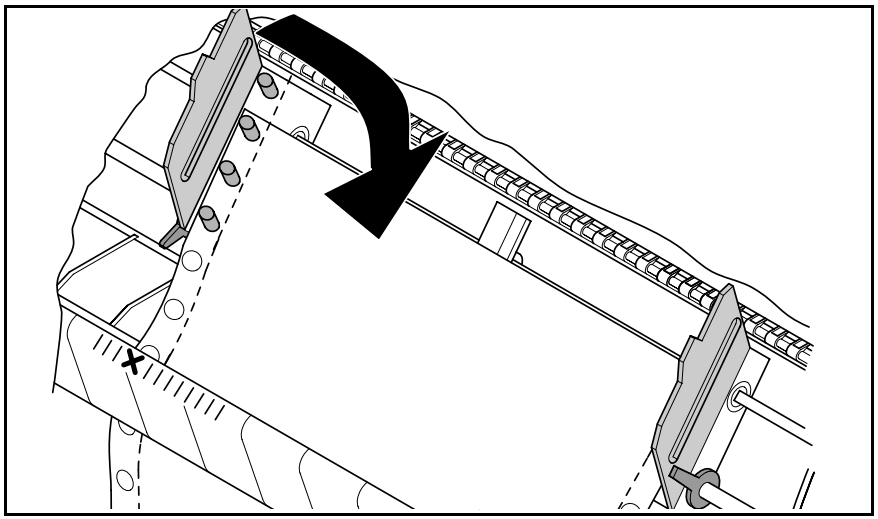
Make sure that the printer is set for fanfold paper printing. If necessary, change the paper type (see *Paper path quick selection*).

Raise the front cover.

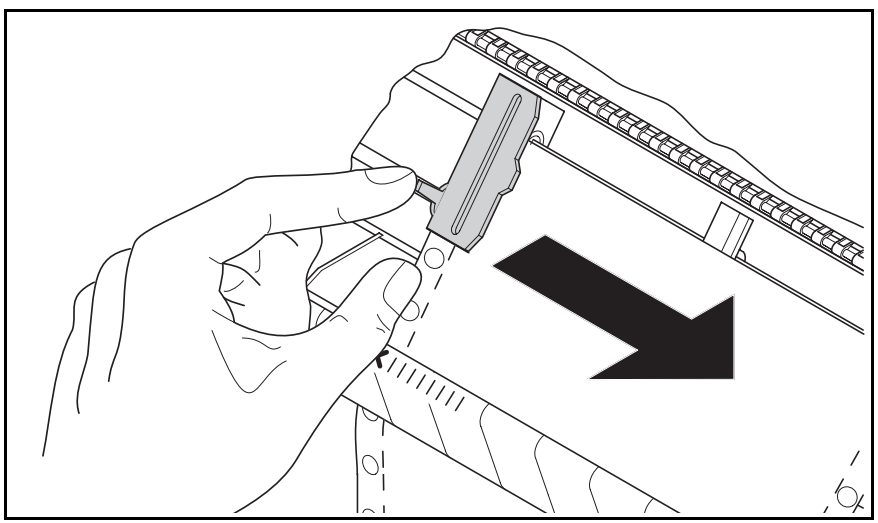


Open the right and left tractor flaps.

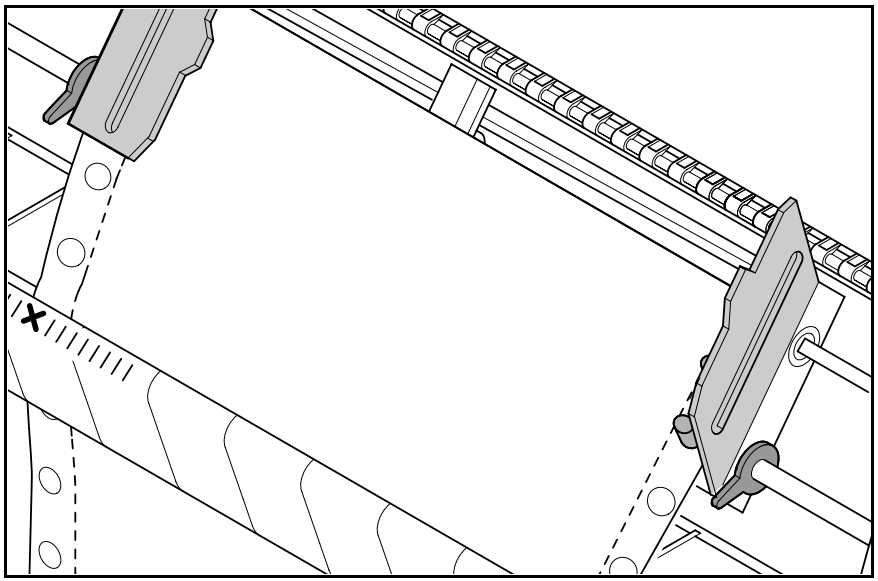
You may also want to remove the bottom cover in order to facilitate loading the fanfold paper. However, you can also feed paper to the tractor with the bottom cover mounted.



Insert fanfold paper into the left-hand tractor. Make sure that at least three paper transport holes are positioned on the tractor pins. Close the left tractor flap. Insert the fanfold paper in the left-hand tractor first, ensuring that at least three perforation holes engage with the tractor pins.
Close the tractor flap.

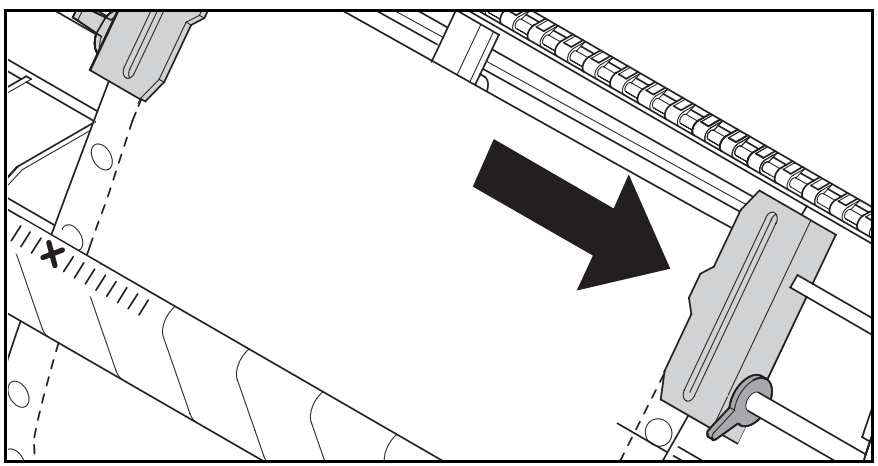


Open the coloured latch lever and align the tractor so that the first printing position on the paper matches the **X** mark on the printer housing.
Lock the lever again.

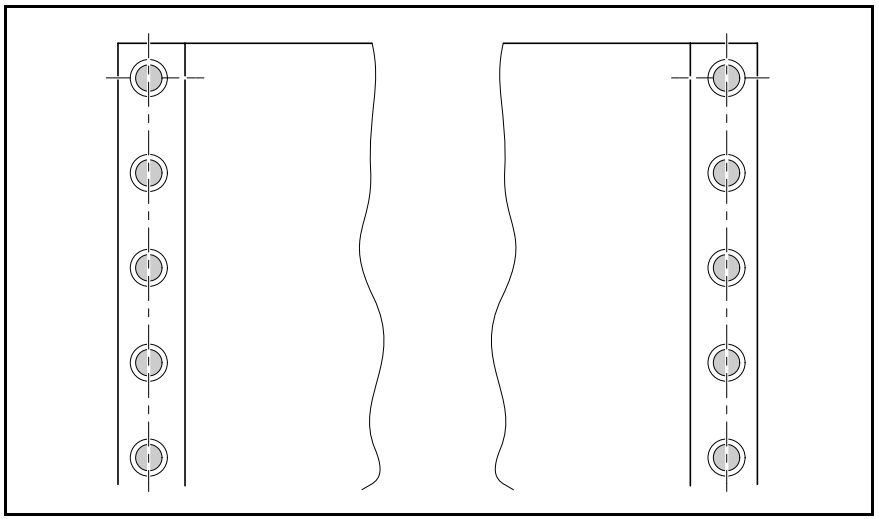


Align the right-hand tractor to the width of the paper and insert the paper.

Make sure that it is inserted by the same length as on the left-hand tractor in order to avoid any paper jam.

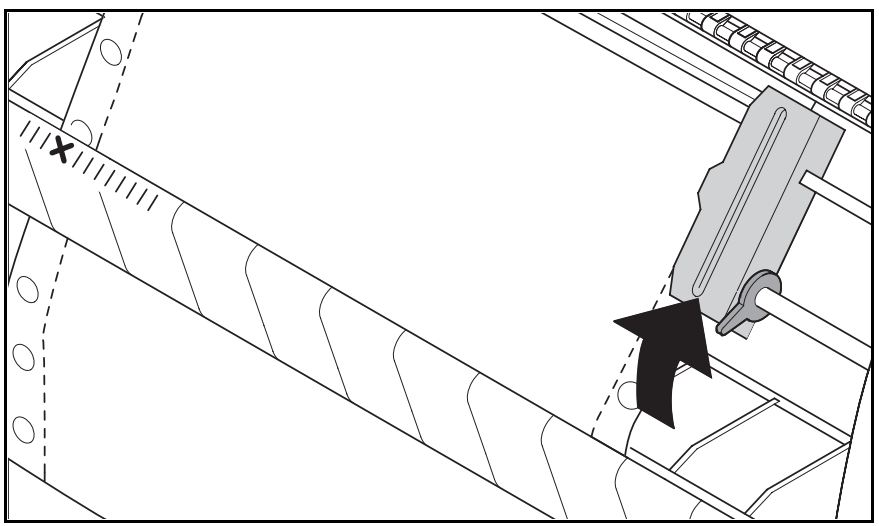


Close the tractor flap and slide the tractor to the right until the paper is slightly tensioned.

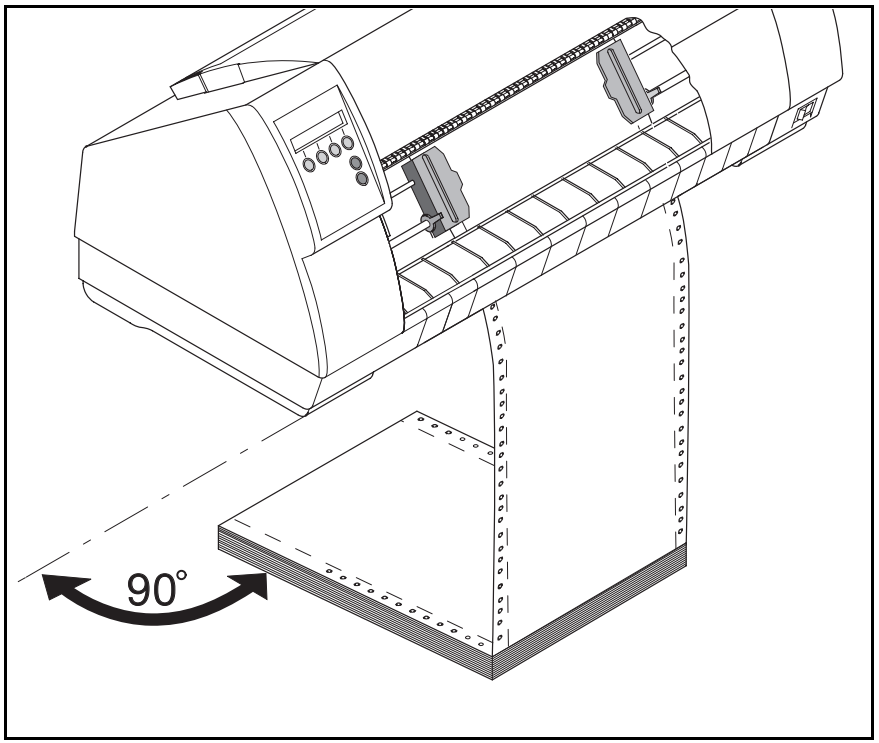


STOP

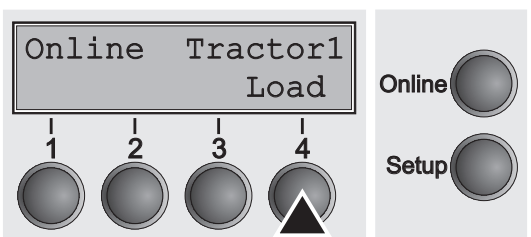
Do not tension the paper excessively to avoid tearing the perforation holes; do not allow excessive slack since in this case the paper will bulge and there may be problems in the feeding process.



Then lock the tractor.

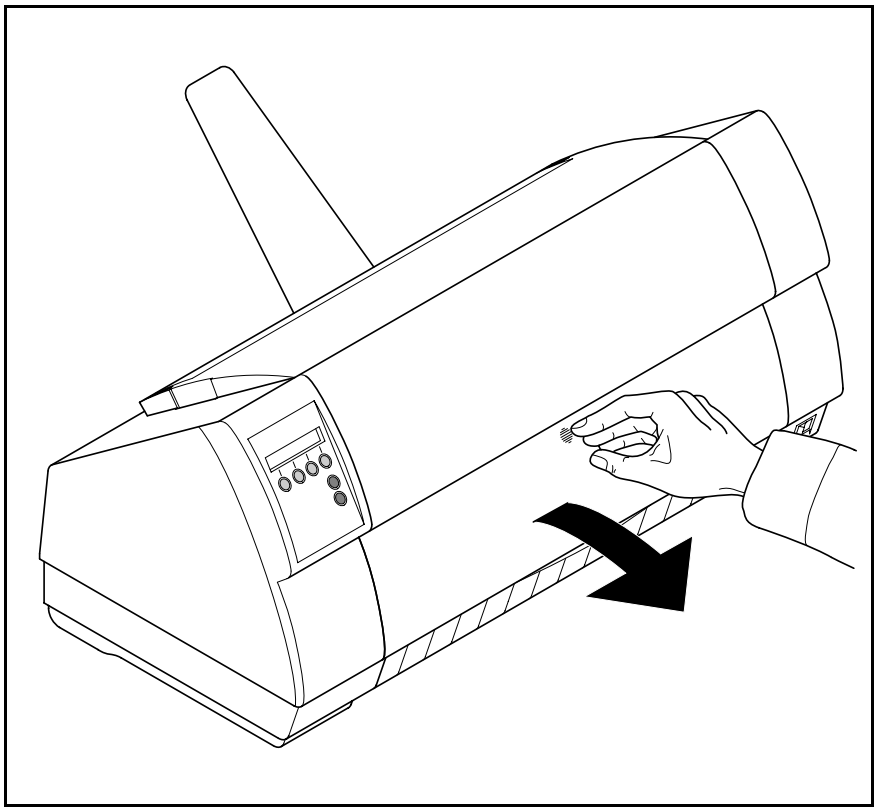


Make sure that the paper stack is aligned in parallel to the printer and that the paper supply cannot be obstructed.



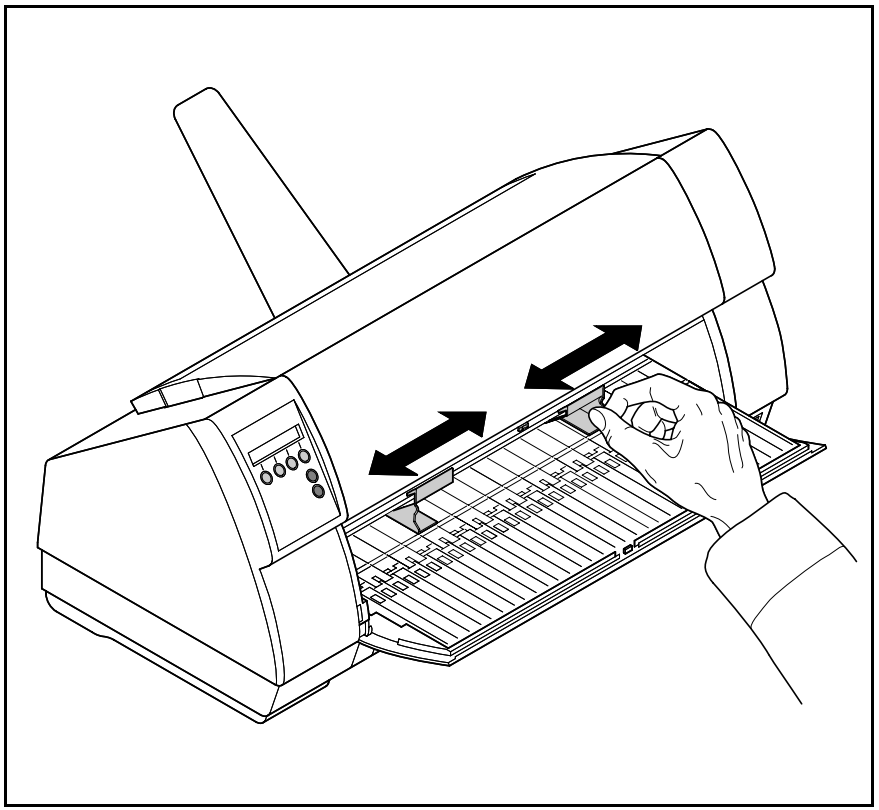
Switch on the printer. The active paper source (**Tractor1**) appears in the display. The paper is automatically loaded when the printer is in online mode and receives data from the computer. Press the **Load** key to load paper before starting the printout.

Single sheets

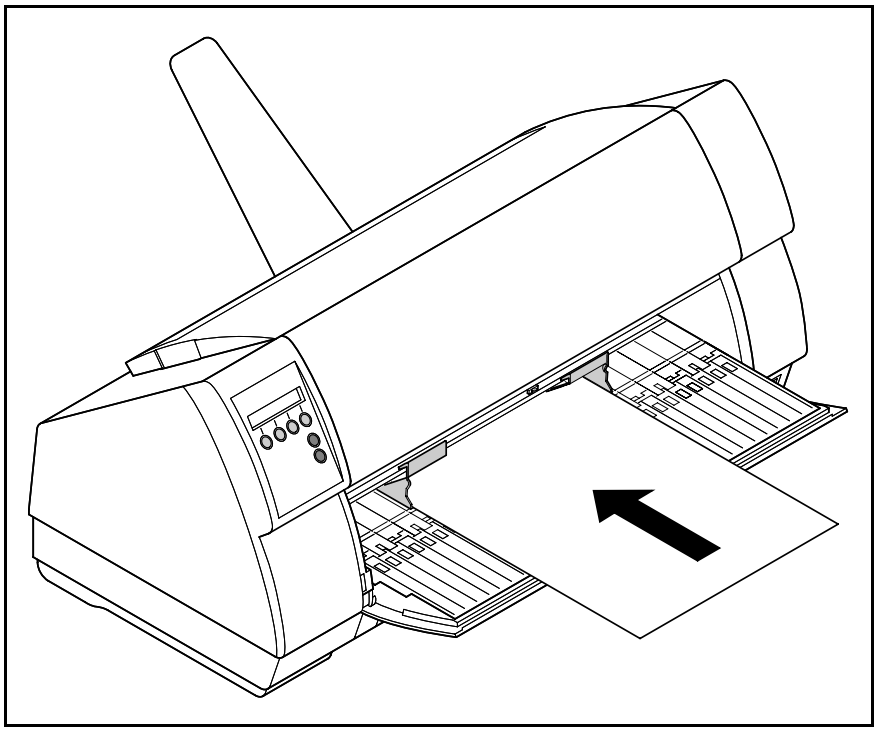


Make sure that the printer is set to single sheet mode. If necessary, change the paper type (see *Paper path quick selection*).

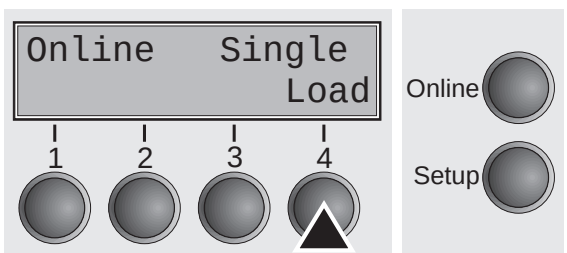
Press the latch at the middle of the front cover. The single sheet input tray opens downwards.



Align the left paper guide with the mark on the left of the single sheet input tray. Adjust the right paper guide to the width of the paper used.



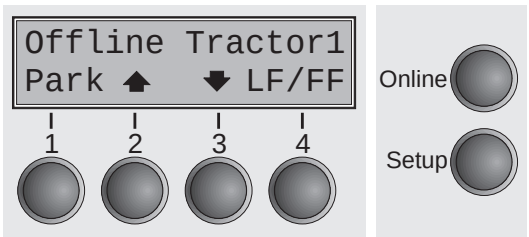
Insert the single sheet into the input tray as far as possible.



Press the **Online** key to set the printer to ready status.
The sheet is automatically loaded when the printer is in online mode and receives data from the computer. Press the **Load** key to load paper before starting the printout.

Handling

➤ Paper transport



Loaded paper can be transported in the printer in several ways.

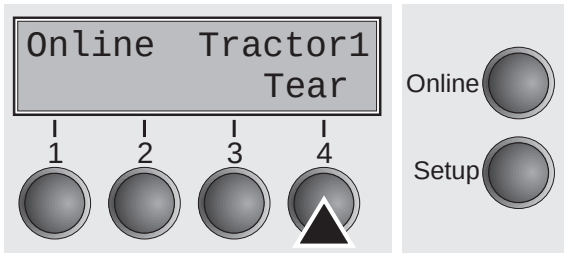
Make sure that the printer is in offline mode; press the **Online** key, if necessary.

- Key ▲ (2)
  Short keypress: Paper is transported upwards step by step
  Long keypress: Continuous transport upwards
- Key ▼ (3)
  Short keypress: Paper is transported downwards step by step
  Long keypress: Continuous transport downwards
- **LF/FF** key (4)
  Short keypress: Line Feed (**LF**) is executed
  Long keypress: Form Feed (**FF**) is executed

The maximum value of the paper return feed is 22 inches.

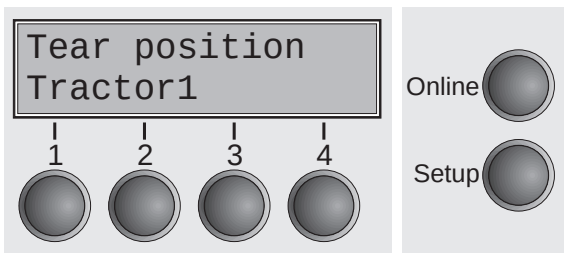
Moving the paper to the tear position

You can use the **Tear** key to move the paper to the tear position.

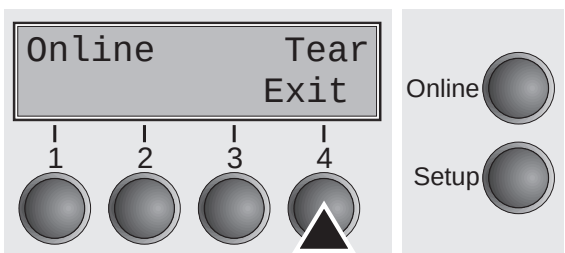


Make sure that the printer is in online mode. Press the **Tear** key. The printer moves the perforation edge of the fanfold paper to the tear edge.

The display alternates between…



and…



After having torn off the paper, press the **Exit** key. The printer returns the paper to the printing position.
If a print job is active, the printer returns the paper automatically to the printing position.

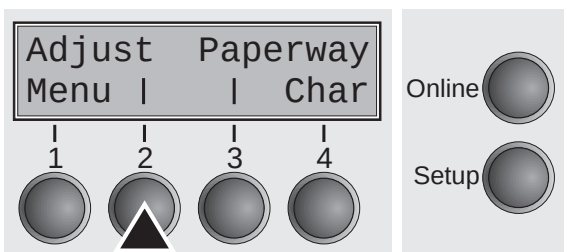
Settings (II)

This section describes how to set the print head gap, the tear position and the first printing line.

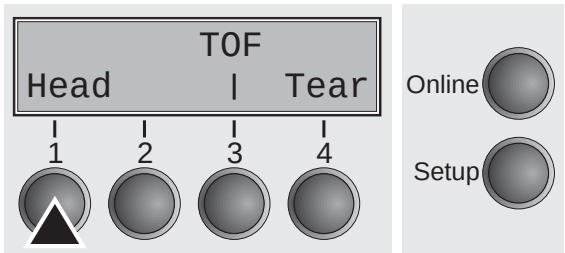
➤ Setting the print head gap

The printer features automatic print head gap adjustment to the thickness of the paper used (called AGA function in the following). In setup mode, you can enter a correction value to modify the head gap determined automatically. This correction is useful for modifying the appearance of the type face and the impact force for multi-layer paper.

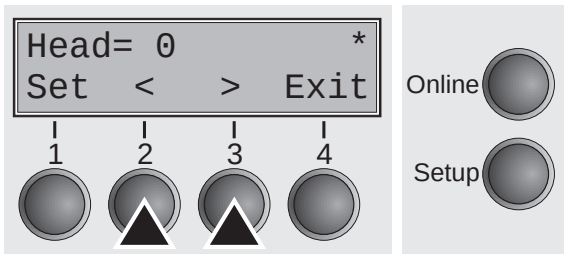
The AGA (automatic gap adjustment) function must be set to “always” or “once”. For more details, refer to the section Mechanical adjustments to the *printer*.



Press the **Setup** key. The printer changes to setup mode.
Press the **Adjust** key.



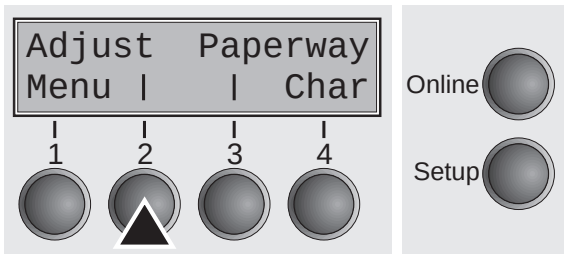
Press the **Head** key.



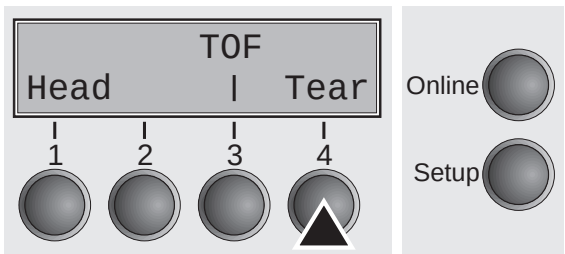
Use the **<** or **>** key to set the range within which the automatic gap adjustment is to be corrected. You can select a value from -10 to +10. Negative values reduce the head distance, positive values increase it.
Confirm the setting by pressing the **Set** key.
Press the **Setup** key. The printer is reset to the initial status.

Setting the tear position

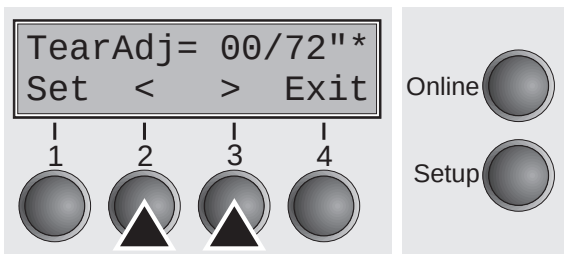
If the tear position of the paper is not aligned with the tear edge of the printer, you can adjust it. Loaded paper may have to be torn and re-positioned to the park position.



Press the **Setup** key. The printer changes to setup mode.
Press the **Adjust** key.



Press the **Tear** key.



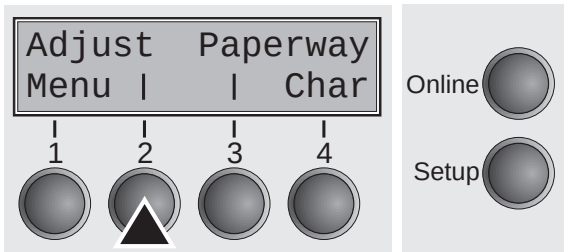
Press the **<** or **>** key to move the perforation to the desired position. Confirm the setting by pressing the **Set** key.Press the **Setup** key. The printer is reset to the initial status.

The correction made will be retained after switching off the printer.

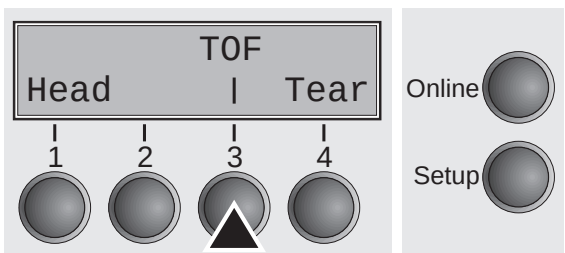
Setting the first printing line (TOF)

You can use the TOF function for setting the position of the first printing line for each paper source and each menu individually.

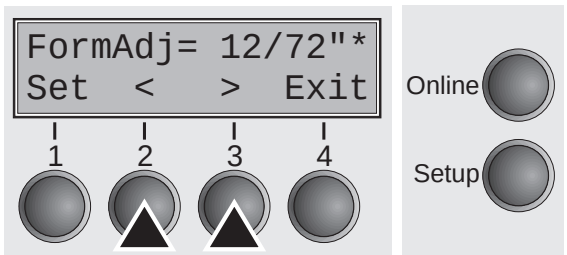
Before using the TOF function (if fanfold paper is used), you should first set the tear position (see above).



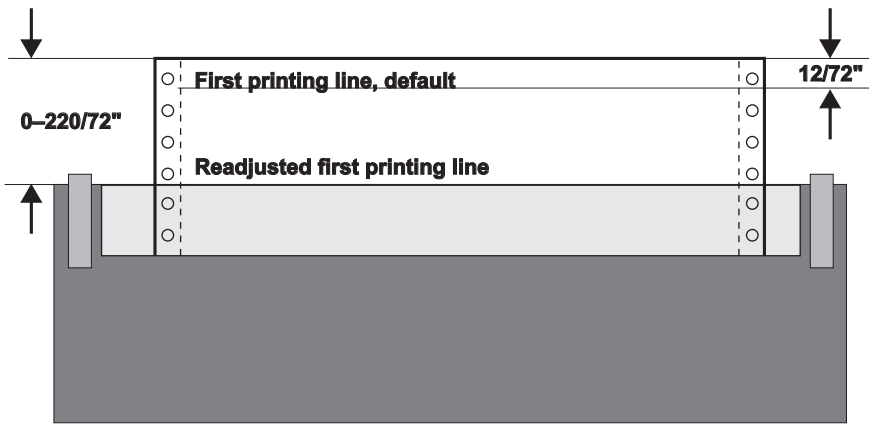
Press the **Setup** key. The printer changes to setup mode.
Press the **Adjust** key.



Press the **TOF** key.
The paper is fed to the position where the bottom edge of the first printing line is aligned with the tear edge. The factory setting for the first printing position (TOF) is 12/72".



Press the **<** or **>** key to move the first printing line to the desired position. You can set values in the range from 0 to 220/72" for fanfold paper and for single sheets.



Confirm the setting by pressing the **Set** key.
Press the **Setup** key. The printer is reset to the initial status.

The setting made will be retained after switching off the printer.

The Menu

Programming via the control panel

Apart from being able to control your printer via the applications software you use, you can also program the printer directly. There are two programming options you can use:

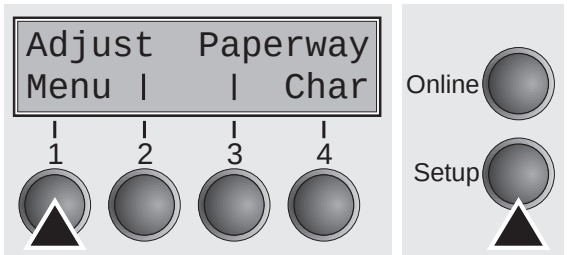
- Programming via the control panel and
- Programming via the interface using Escape sequences or control codes

Settings made by escape sequences have priority over settings made in menu mode; therefore they will override these.

Programming via the interface gives you far greater freedom for designing your printed pages, however, it is also a more sophisticated method and requires some experience with programming languages and printer control systems.

All programming via the interface is lost after you turn off the printer, whereas the programming carried out using the control panel, is saved and stored even after you turn off the printer.

Calling up the menu



You can access the menu in the following way:

Press the **Setup** key. The printer switches to Setup mode. (The Setup mode can be selected both in the Online and Offline mode.)

To access the printer menu, press the key directly underneath the word **Menu**.

Enabling access to menu mode

Access to the menu has been disabled at the factory in order to prevent unauthorized access. You can do this using the **MenLock** parameter from within the menu itself. (The **MenLock** parameter is described in detail in the *Menu description table*).

Switch off the printer for approx. 5 seconds; keep the **Setup** key pressed when switching on again to unlock the menu.

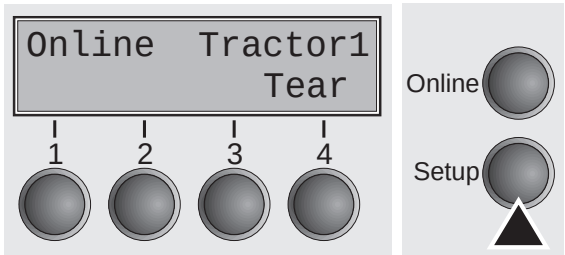
Menu configurations

Every printer is shipped with factory default settings. Basic settings such as emulation, character size, form length etc., which many applications make use of, are set. At the end of this chapter you will find a *menu printout* which shows you the printer's default settings.

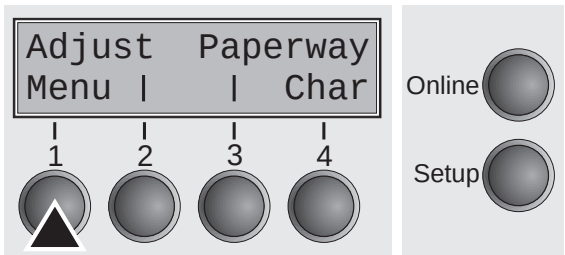
Your printer allows you to set and use three independent menu configurations. If one of your applications for example requires an IBM printer while another program works better with an EPSON printer, you can set an IBM emulation configuration with the desired settings, and set the second configuration as an EPSON emulation.

The active menu is always the one you used last. When you switch on the printer for the very first time, menu no. 1 is loaded. Menu no. 1 only remains active until you load another menu. Even after you turn off the printer the menu that was active last remains the active menu and when you switch the printer on again this menu is loaded automatically.

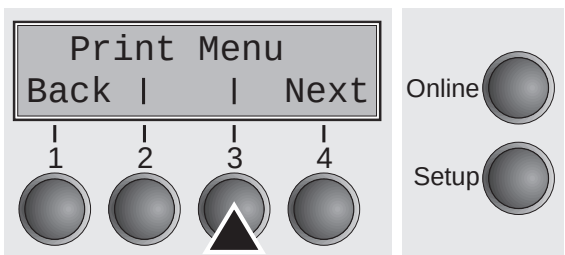
For example, to change from menu no. 1 to menu no. 3:



Select **Setup** mode (press **Setup** key).

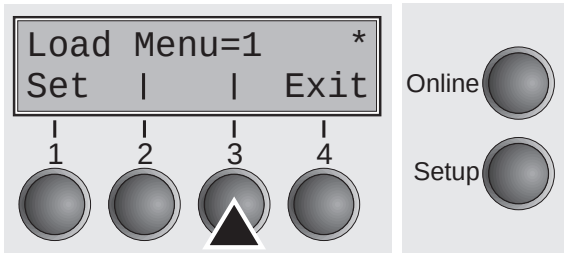


Select **Menu** mode (press key under Menu).



Select **Menu** again (press key under Menu).

Now the following message appears in the LC display:



Now press the **<** or **>** key repeatedly until **Load Menu=3** appears. Then select menu no. 3 as the current setting using the **Set** key. After you have completed this change the printer initialises itself and a corresponding message is displayed in the LC display.

The currently active setting is marked with an asterisk (*****).

If changing menues it is possible that the printer initializes due to different emulation settings.

Menu handling

You move from menu item to menu item using the four function and selection keys underneath the LC display. Every function and every parameter displayed on the LC display is effected/selected by the key directly underneath. For this reason the function and selection keys are referred to in this manual by their current assignment. Generally two parameter groups occupy one level (in the following picture the parameter groups **LPI** and **Skip** occupy one level).

If you do not wish to change one of the two parameters you can either press the **Next** key (to access the two following parameter groups in the menu), or you can press the **Back** key (to access the two previous parameter groups in the menu).

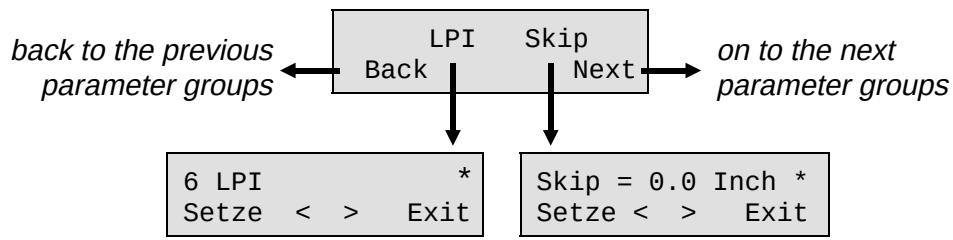
If you want to change a setting, (e.g. the line density), then press the **LPI** key (LPI = lines per inch) to access the actual parameter level.

The currently valid setting is marked by a * (in the example below the current setting is 6 lpi). With the **<** and **>** keys you can view the other parameters available for this setting.

➤ Save settings

Once the desired parameter is displayed on the LC display, you can save it by pressing the **Set** key. The parameter is then set and the printer automatically displays the parameter groups again. With the **Exit** key you can leave the sublevel without saving your changes.

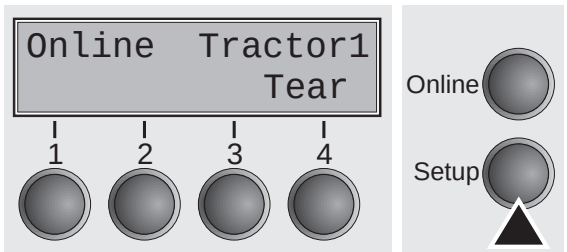
Example:



Selecting the LC display language

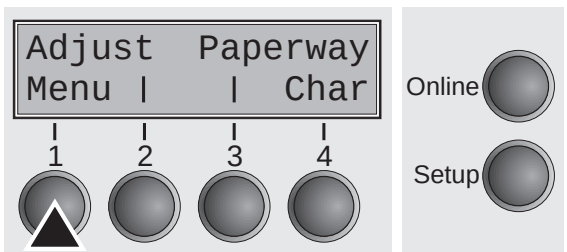
This section describes how to make settings in the menu, using the selection of the national language as an example.

This example shows how to change from the English language to the German language. The same procedure applies to the other languages (french, Italian and spanish).

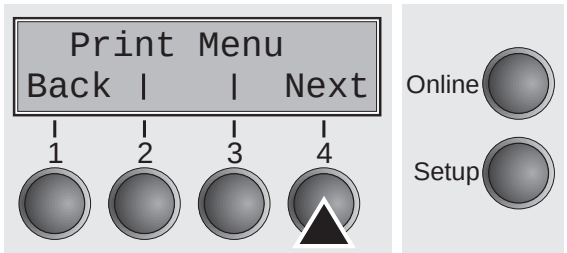


Press the **Setup** key.

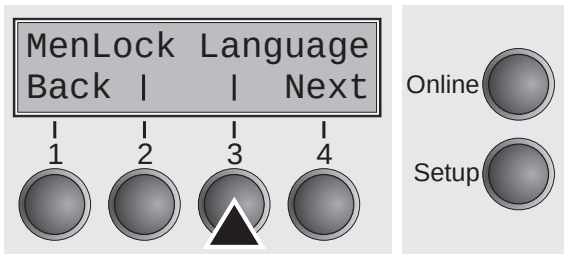
Menu mode may be disabled. Hold down the Setup key while switching on the printer to enable menu mode. If you want to enable access to this mode permanently, you need to change the appropriate setting in the menu (see *Menu description table* in this chapter).



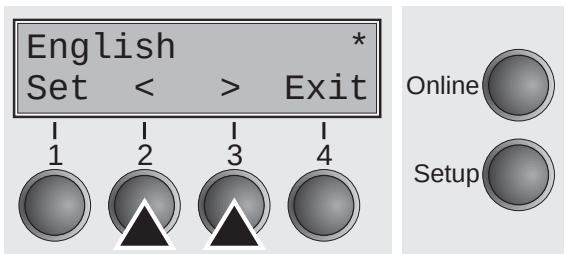
Press the **Menu** key.



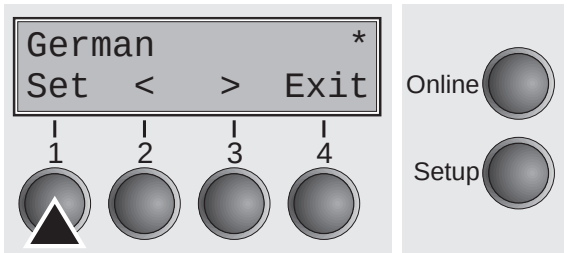
Press the key **Next** several times until the display indicates **Language**.



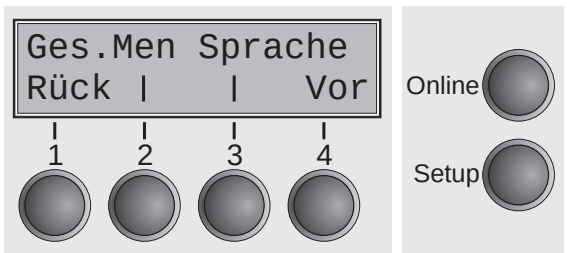
Select the key **Language**.



The display now changes to Parameter mode and indicates **English** in the top line.
The lower line displays **Set** and **Exit**. The two arrows **<** and **>** represent the symbols for parameter selection ("<" indicates descending and ">" ascending). Press the key **<** or **>** until the desired language is displayed, in our example **German**.



Save your selection by pressing the key **Set**. An acoustic signal verifies this action.
You can exit Parameter mode without saving a setting by pressing the key **Exit** (the old setting is retained).
After saving your setting (**Set**), the display in our example indicates the following text:



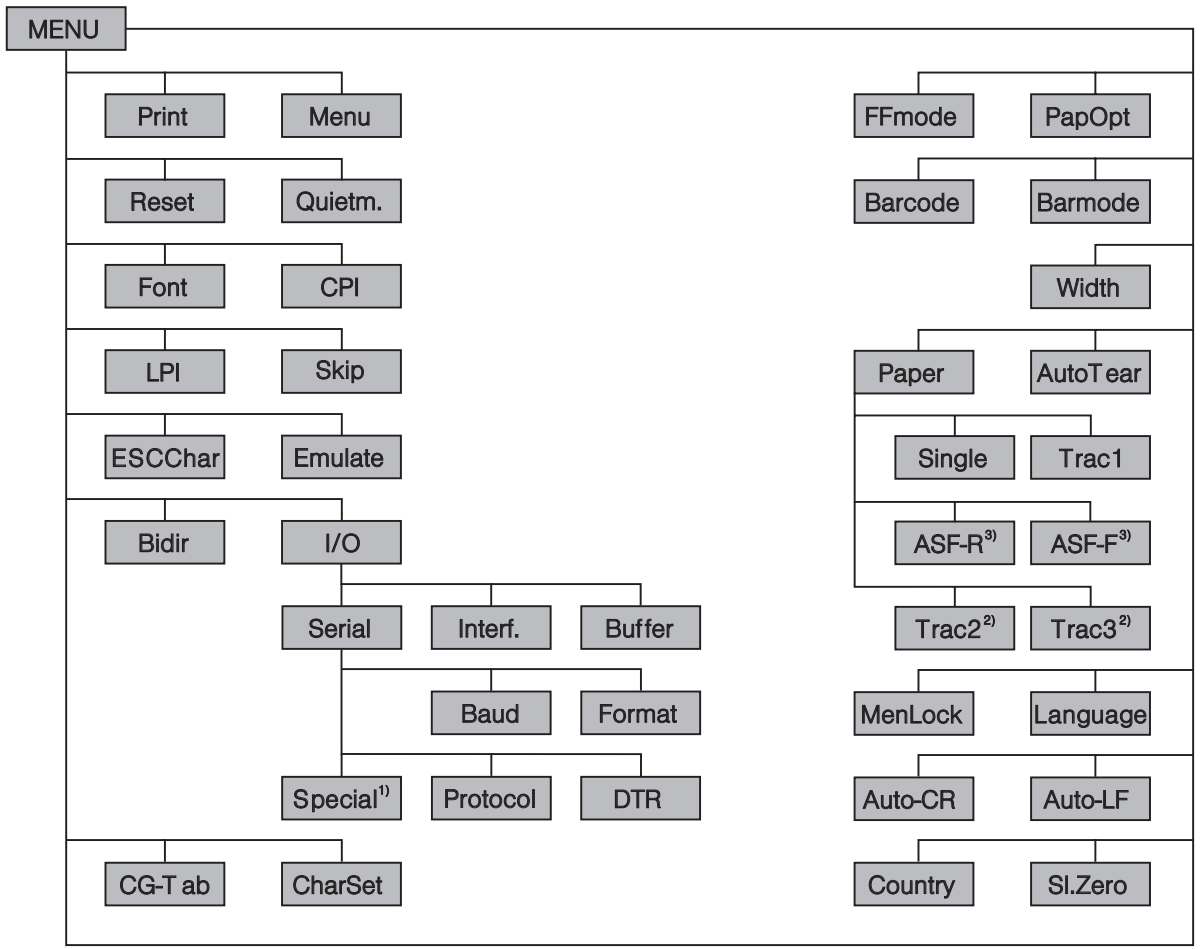
This setting is retained even after switching off your printer.

➤ Terminating Setup mode

Press either the key **Setup** to change into Offline mode or the key **On-line** to change to Online mode.

Menu structure

The menu structure of your printer may be slightly different from the example shown here, depending on the printer software.



1) only if ENQ/STX, ETX/ACK or ACK/NAK protocol is selected
2) only with optional tractor
3) only with optional ASF

Menu description table

Parameter group	Parameter	Description
Print	(none)	A list of the menus with the current parameters is printed. You will find an *example* of a printout at the end of this table.
Menu	Load Menu = 1* Load Menu = 2 Load Menu = 3	A menu is loaded, you can choose between three menus.
Reset Reset Menu 1	Reset Menu 1 No Yes	The current menu returns to the default values (factory settings).
Quietm.	Off* On	Switches between normal and quiet mode printing. For all printing modes, the printout is made with the bidirectional method in quiet mode printing. In the first step the first row of pins is activated, during the second step the second row is used.

Parameter group	Parameter	Description
Font	Draft* Draft Copy Roman NLQ Roman LQ Roman PS NLQ Roman PS LQ Sans Serif NLQ Sans Serif LQ S Serif PS NLQ S Serif PS LQ Courier NLQ Courier LQ OCR-B NLQ OCR-B LQ OCR-A NLQ OCR-A LQ Courier I NLQ Courier I LQ Cour I PS NLQ Cour I PS LQ Kix/Royal NLQ Kix/Royal LQ Roman T NLQ Roman T LQ S Serif H NLQ S Serif H LQ	Selects the character style and its quality. Character styles marked with an I (for example **Courier I PS LQ**) are IBM compatible fonts (PS = proportional font). Fonts with the identifier PS in their name are proportional fonts which use only the space actually required for the character width. Example: Roman LQ: Roman PS LQ:

Parameter group	Parameter	Description
CPI	5 CPI, 6 CPI, 7.5 CPI, 8.6 CPI, 10 CPI*, 12 CPI, 15 CPI, 17.1 CPI, 20 CPI	Sets the **c**haracters **p**er **i**nch (character pitch). The higher the parameter the smaller the character spacing.
LPI	2 LPI, 3 LPI, 4 LPI 6 LPI*, 8 LPI, 12 LPI	Sets the **l**ines **p**er **i**nch (line density). The higher the parameter the smaller the line spacing. Random LPI can be selected via the ESC sequences.
Skip	Skip = 0.0 Inch* Skip = 0.5 Inch Skip = 1.0 Inch Skip = 1.5 Inch Skip = 2.0 Inch Skip = 2.5 Inch Skip = 3.0 Inch Skip = 3.5 Inch	Skips the perforation; 7 different values (in inches) can be defined.
ESCChar	ESCChar = ESC* ESCChar = ESC+$$	Selects the start signal for control sequences: Escape signal only or Escape signal and two $ signs. A description can be found in the chapter *Emulations*.
Emulate	Epson LQ-2550* Epson LQ-2170 IBM Propr. XL24 IBM ProXL24+AGM MTPL	Selects the emulation. MTPL is also active in IBM or Epson emulation mode.

Parameter group	Parameter	Description
Bidir	Bidir = On* Bidir = Off	Setting **On**: Printer prints in both directions (bidirectional). Setting **Off**: Printer prints only in one direction (from left to right).
I/O Serial Baud	Baud = 600 Baud = 1200 Baud = 2400 Baud = 4800 Baud = 9600* Baud = 19200	Selects the data transmission rate (baud rate) (baud = bit per second). Printer and computer must have the same baud rate.
Format	7 Bit No 2 Stop 7 Bit Even 1 Stop 7 Bit Odd 1 Stop 7 Bit Even 2 Stop 7 Bit Odd 2 Stop 7 Bit Mark 1 Stop 7 Bit Spc 1 Stop 7 Bit Mark 2 Stop 7 Bit Spc 2 Stop 8 Bit No 1 Stop* 8 Bit No 2 Stop 8 Bit Even 1 Stop 8 Bit Odd 1 Stop 8 Bit Mark 1 Stop 8 Bit Spc 1 Stop	Selecting the data format 1. Sets the number of data bits 2. The parity test for received data bytes can be selected. **No** causes transmission in both directions without parity bit. If **Even** or **Odd** is selected, the bytes are checked if they have even or odd parity. The selection of **Mark** or **Spc** (Space) causes a data byte transmission with parity bit, but without checking the received data. Transmission data with parity bit is always marked with 1 (**Mark**) or 0 (**Spc**). 3. Selects one or two stop bits per data byte. (see example in Chapter *Interfaces*)

Parameter group	Parameter	Description
Special		Can only be selected if the serial interface is installed and if the ENQ/STX, ETX/ACK or ACK/NAK protocol is set. See Chapter *Interfaces*
ErrMode	ErrMode = On ErrMode = Off*	Error handling; **On** replaces the incorrect character with ?, **Off** deletes the entire block.
Blockend	Blockend = On Blockend = Off*	End-of-block character definition: **On** = LF, FF, CR, VT, ETX, DEL, **Off** = ETX, DEL.
Remote	Remote = On Remote = Off*	Signal feedback; **On** = RDY/BUSY available, **Off** = No RDY/BUSY control.
Handthr	Handthr = On Handthr = Off*	Affects the transparence of control sequences and block acknowledgement, depending on the selected protocol.
Protocol	XON/XOFF* Robust XON/XOFF ENQ/STX ETX/ACK ACK/NAK	Selects the protocol for data transmission; see Chapter *Interfaces*
DTR	DTR = DTR* DTR = READY	DTR signal is assigned to DTR line. READY signal is assigned to DTR line. DTR = Pin 20 on 25-pin female V.24 connector. DTR = Pin 4 on 9-pin female V.24 connector.
Interf.	Interf.= Share* Interf. = Parallel Interf. = Serial	Selects the interface. Printer is configured either for parallel or serial connection or in automatic change for both.

Parameter group	Parameter	Description
Buffer	Buffer = 0 KB* Buffer = 16 KB Buffer = 32 KB Buffer = 48 KB Buffer = 64 KB	Selecting the interface data buffer size. If you select 48 or 64 KB, there is no buffer available for DLL any more.
CG-Tab	CG-Tab = Graphic* CG-Tab = DLL CG-Tab = Italic	Only available for Epson emulation. Either the Epson character set Italics or the IBM graphics character set or a DLL (download) character set, as defined before, can be activated in the code range from hex. A0 to hex. FE.
CharSet	Standard Extended*	Selects the standard characters or the extended characters; see *Character sets*.
Country	E-US ASCII* E-France E-German E-UK E-Denmark I E-Sweden E-Italy E-Spain I E-Japan E-Norway E-Denmark II E-Spain II E-L. America E-Korea E-Legal	Selects the national character set. These character sets can be used according to the selected emulation. Epson character tables

Parameter group	Parameter	Description
Country (continued)	ISO 8859-1* ISO 8859-1 SAP ISO 8859-2 ISO 8859-5 ISO 8859-9 ISO 8859-15 BRASCII Abicomp Roman 8 US ASCII* UK ASCII French German Italian Swedish Norwegian Spanish Portuguese Cro-ASCII	ISO and MTPL character tables
	Table 437 Table 850 Table 852 Table 857 Table 860 Table 861 Table 863	IBM code page tables

Parameter group	Parameter	Description
Country (continued)	Table 865 Table 866 Table 1250 Table 1251 Table 1252 Table 1254	IBM code page tables
Sl.Zero	Sl.Zero = On Sl.Zero = Off*	Selects if normal zero (0) or the slashed zero (Ø) is printed.
Auto-CR	Auto-CR = On* Auto-CR = Off	Switches the automatic carriage return on or off after receiving the signal CR (carriage return).
Auto-LF	Auto-LF = On Auto-LF = Off*	Switches the automatic line feed (LF) on or off after receiving the signal CR (carriage return).
MenLock	MenLock = Off MenLock = Menu* MenLock = All	With **MenLock = Off**, all functions and settings are accessible without restriction in Online, Offline and Setup mode. If **MenLock = Menu** is activated, all functions and settings are still accessible in Online and Offline mode, however, in Setup mode you can only access the parameter groups Adjust (setting the print head gap [**Head**], top of form [**TOF**] and tear position [**Tear**]), **Paperway** (setting the paper path) and **Char** (setting the [**Font**] and the character spacing [**CPI**]), while access to Menu mode is disabled. If you select **MenLock = All**, you can access the Online/Offline, Load/Park Paper and Paper Feed (LineFeed/Form Feed, ▲/▼) functions in Online and Offline mode while Setup mode is disabled.

Parameter group	Parameter	Description
Language	English* German French Italian Spanish	The menu can be shown in five languages on the LC display.
Paper	Single Tract1 ASF-R ASF-F Trac2 Trac3	Selects the paper parameters **Formlen**, **FormAdj** and **Head**.
Formlen Lines	6 **:** 72* **:** 132	Sets the form length via line formats. Please note that the adjustment in **Lines** depends on the selected LPI. For example 8 LPI at a selected line number of 96 lines results in a formlength of 12 inches (96 lines/[8lines/inch]) = 12 inches). The adjustable range is from 1 to 22 inch, i.e. with 2LPI, from 2 to 44 lines and with 12 LPI, from 12 to 264 lines. **The adjustable range may also be set outside the specification of the paper path used (see Technical Data, *Paper Specifications*, or, if you use an optional tractor or ASF, the corresponding *paper specifications*). However, any settings outside of these specifications are your own responsibility, and proper function is not guaranteed.** If the form length is set it will not be changed by changing the LPI later on.

Parameter group	Parameter	Description
Formlen Standard	No format DIN A3 DIN A4 DIN A5 DIN B5 DIN B6 DIN C6 Executive Letter Legal	Selects the form length by standard formats. Using **Standard**, different paper formats can be selected directly, e.g. DIN A4, Legal, Letter. The LC display indicates **No format** if a value is selected by the **Line** function or ESC sequences, which does not correspond to a standard format.
FormAdj	FormAdj = 0/72" : FormAdj = 1/72" : FormAdj = 220/72"	Sets the first print position of a form in n/72 inch, separately adjustable for each paper path. The settings made here reduce the height of the printable area.
Head	Head = 0 : Head = 18* : Head = 100	Adjusts the gap between the print head and the printed medium for the current paper path. When changing the paper path, the printer automatically uses the print head gap set for the new paper path. Only if the AGA function of the printer is switched off (see *Setting the AGA function*).

Parameter group	Parameter	Description
AutoTear	View/Tear = Off* View = 1s View = 3s View = 6s Tear = 1s Tear = 3s Tear = 6s Tear at TOF	The **View** function or the **Tear** function can be selected as desired. When **View** is switched on, the last printed text is visible. As soon as data is received the paper moves to the “normal” print position. After printing the printer waits for the given interval to bring the paper once more to the auto view position. The paper is in the tear off position when **Tear** is switched on, the perforation of the paper is positioned at the tear off edge of the printer. If data is received, the paper returns to the normal print position. After printing, the printer waits for the given interval to bring the paper once more to the tear off position. If the tear off edge does is not aligned with the perforation of the paper then this can be corrected (see *Mechanical adjustments to the printer*). If the parameter **View/Tear = Off** is set, the paper can still be brought into a View or Tear position via a specific sequence (see *Emulations*, MTPL sequences). If the parameter **Tear at TOF** is set, the paper perforation is automatically positioned at the tear off edge as long as the current print position TOF is activated. Feeding takes place after approx. 1.5 seconds (hold time). If any data is received during this period of time the paper is not positioned at the tear off edge. With this function it must be noted that the printer may only be switched off when the print position is at TOF.
Width	Width = 8 Inch Width = 13.2 Inch Width = 13.6 Inch*	Selects the line length in inches. With the setting of **8 Inch**, the printer operates like a printer with a width of only 8 inches.

Parameter group	Parameter	Description
Barcode	On/Off*	With this function selected it is posible to print different barcodes and LCP (Large Character Printing). The definition and activation is performed by special sequences through the interface. Since this selection is possible for all emulations it must be noted that con-flicts in sequence conformity with the selected emulation may occur. For this reason the barcode function can also be switched on and off by MTPL sequences. (The possible barcodes, LCP characters and the operation of these functions are described in the *Barcode Programmer's Application Manual*.)
Barmode	Secured	In secured mode, the space which the barcode characters require is "protec-ted". In each line, other barcode or normal characters can also be printed. These additional characters are printed in the line currently being printed and and in the subsequent lines, without affecting the barcode which is already being printed. Consequently, normal characters can be printed in every line to the right or left of the barcode.
	Unsecured*	In unsecured mode, the required paper transport for printing barcodes and LCP is carried out automatically, it is not possible to print more than one line of normal characters in the barcode line. All characters in the mixed line are printed such that their bottom edges are in a straight line. This function may be switched on and off by sequences.
FFmode	On/Off*	FF mode is set to **On**: If the paper is positioned in the first printing line, form feeds will be ignored. FF Mode is set to **Off**: Form feed will be performed in all cases.

Parameter group	Parameter	Description
PapOpt		Selection of the optional sheet feeders (ASF) and the optional tractors (see *paperways*).
ASF-R	ASF-R=installed* ASF-R=not installed	**ASF-R**: Automatic sheet feeder at rear side of the printer
ASF-F	ASF-F=installed ASF-F=not installed*	**ASF-F**: Automatic sheet feeder at front side of the printer
Trak2	Trac2=installed* Trac2=not installed	**Trac2**: Optional tractor at front side of the printer
Trak3	Trac3=installed* Trac3=not installed	**Trac3**: Optional tractor at rear side of the printer If you set any of these options to **Not installed**, they will not be displayed in the paper path quick selection menu.
AutoTRA	AutoTRA=Off* AutoTRA=T1=T2 AutoTRA=T1=T2=T3	If an optional tractor is installed and the **Off** parameter is active, only the tractor selected (either via the menu or by means of an ESC sequence) is supported. If the selected tractor is out of paper, printing is discontinued. If an optional tractor is installed and **T1=T2** is activated, the printer loads paper from the other tractor if the selected one is out of paper. If two optional tractors are installed, the same applies to three tractors with the setting **AutoTRA=T1=T2=T3**.
AutoASF	AutoASF=Off* AutoASF=On	If an automatic sheet feeder (ASF) is installed and the parameter **AutoASF=Off** is active, only the paper bin selected (either via the menu or by means of an ESC sequence) is supported. If the selected bin is out of paper, printing is discontinued. If an ASF is installed and **AutoASF=On** activated, the printer loads paper from the other bin if the selected one is out of paper.

Menu settings (example)

Current settings

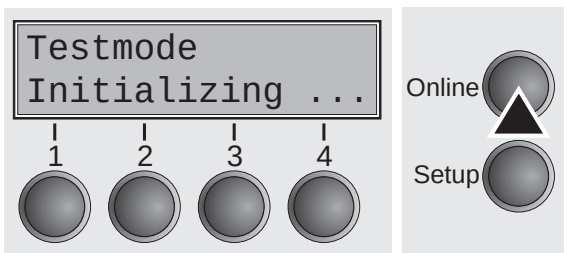
	Menu 1	Menu 2	Menu 3	Current
Font	DRAFT	DRAFT	DRAFT	DRAFT
CPI	10 CPI	10 CPI	10 CPI	10 CPI
LPI	6 LPI	6 LPI	6 LPI	6 LPI
Skip	0.0Inch	0.0Inch	0.0Inch	0.0Inch
Emulate	Epson LQ-2550	IBM Propr. XL24	Epson LQ-2550	Epson LQ-2550
Bidir	On	On	On	On
CG-Tab	Graphic	Graphic	Graphic	Graphic
CharSet	Extended	Extended	Extended	Extended
Country	E-US ASCII	TABLE 437	E-US ASCII	E-US ASCII
Sl.Zero	Off	Off	Off	Off
Auto-CR	On	On	On	On
Auto-LF	Off	Off	Off	Off
AutoTear	ViewTear=Off	ViewTear=Off	ViewTear=Off	ViewTear=Off
Width	13.6Inch	13.6Inch	13.6Inch	13.6Inch
Barcode	Off	Off	Off	Off
Barmode	Unsecured	Unsecured	Unsecured	Unsecured
Single				
Formlen	12.0Inch	12.0Inch	12.0Inch	12.0Inch
Head	18	18	18	18
FormAdj	12/72"	12/72"	12/72"	12/72"
Tractor1				
Formlen	12.0Inch	12.0Inch	12.0Inch	12.0Inch
Head	18	18	18	18
FormAdj	12/72"	12/72"	12/72"	12/72"
SFR				
Formlen	12.0Inch	12.0Inch	12.0Inch	12.0Inch
Head	18	18	18	18
FormAdj	12/72"	12/72"	12/72"	12/72"
Tractor2				
Formlen	12.0Inch	12.0Inch	12.0Inch	12.0Inch
Head	18	18	18	18
FormAdj	12/72"	12/72"	12/72"	12/72"
SFF				
Formlen	12.0Inch	12.0Inch	12.0Inch	12.0Inch
Head	18	18	18	18
FormAdj	12/72"	12/72"	12/72"	12/72"
Tractor3				
Formlen	12.0Inch	12.0Inch	12.0Inch	12.0Inch
Head	18	18	18	18
FormAdj	12/72"	12/72"	12/72"	12/72"

Interf.	Shared
Buffer	0 KB
CX-bid	On
Menu	1
SFR	Installed
SFF	Installed
Trac2	Installed
Trac3	Installed
SFR=SFF	Off
Quietm.	Off
AGA	always
AGA offset	0
Sound	On
FFmode	Off
Wrap	On
Rightzo	Off
Leftzon	Off
Head up	Off
Pagewid	136/10"
Physlm	0/10"
Serial	
Baud	9600
Format	8Bit No 1Stop
Protocol	XON/XOFF
DTR	DTR

Test functions

➤ Test functions

Various tests to check proper operation of the printer are available at any time. With these tests it is possible to check the print quality, proper operation of the printhead and the mechanics, as well as efficient data transmission from the computer to the printer.

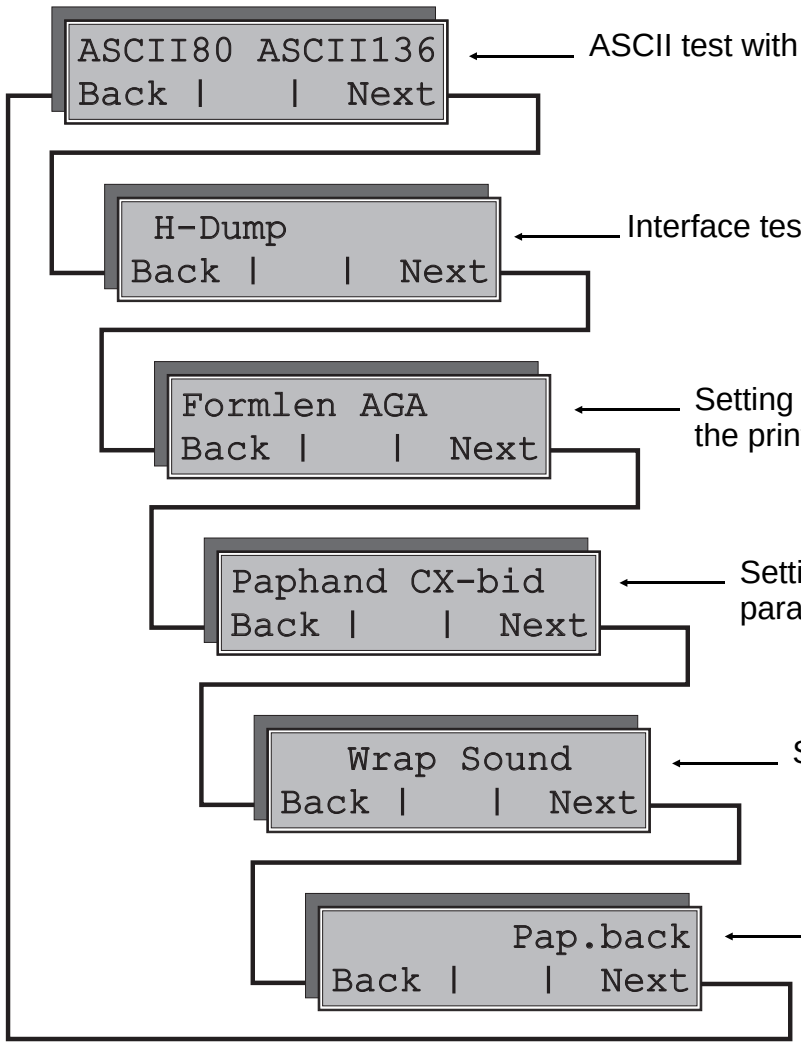


Enter Test mode by pressing the key **Online** while switching on the printer.

Hold the key Online until Testmode is shown in the display.

Functions and Adjustments

- This test menu contains three test functions (**ASCII 80**, **ASCII 136**, **H-Dump**).
- Menu option **Formlen** allows you to define the basic form length setting. With **AGA**, you can activate or deactivate the automatic print head gap function.
- Furthermore, you may select settings to facilitate handling paper of complicated structure or poor quality (**Paphand**). The **CX-bid** menu option controls the bidirectionality of the parallel interface.
- With the function **Wrap** you can set line wrap and with the function **Sound** beep at paper end.
- The function **Pap.back** allows printing on paper with a dark back.



ASCII test with 80 or 136 characters per line

Interface test

Setting default form length and the Automatic Gap Adjustment for the print head

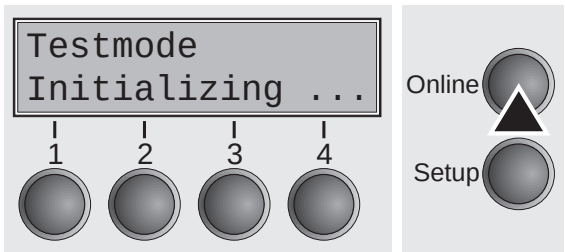
Settings to facilitate handling paper of poor quality and the parallel interface

Setting line wrap and sound when paper empty

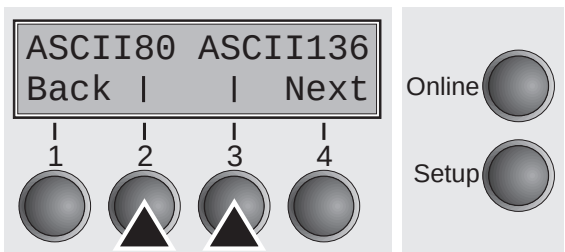
Setting for printing on paper with dark back

Printer self-test (Rolling ASCII)

To check operational readiness, your printer contains a self-test routine which allows testing of the printer configuration, the print quality and correct operation of your printer.



Before performing a self-test, your printer must be switched off. Ensure that paper and a ribbon are inserted. Keep the key **Online** pressed while switching on the printer, until **Testmode** appears on the display.

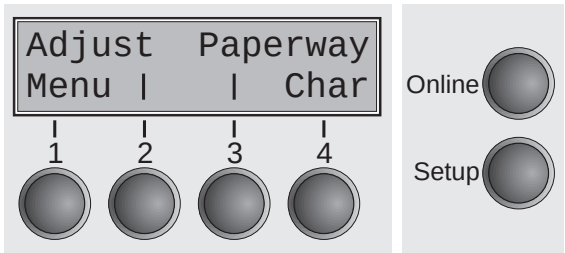


The display offers you the selection between ASCII 80 (80 ASCII characters are printed per line) and ASCII 136 (136 ASCII characters are printed per line).

STOP

Make sure that the selected format (ASCII 80 or ASCII 136) matches your paper format; otherwise the printer may be mechanically damaged.

Press the soft key for the ASCII 80 format (corresponds to Legal Portrait) or for ASCII 136 (Double or Legal Landscape). The display will indicate **Test mode Off**.

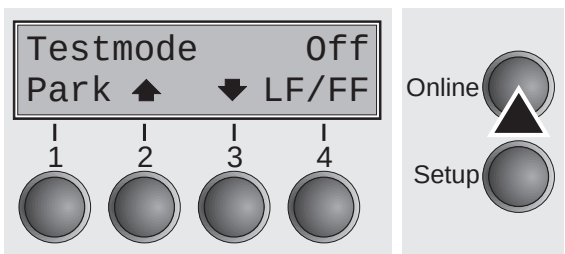


It is also possible to change to Setup mode when you are in Rolling test mode if you want to change the configuration for the test printout.

To do this, press the key **Setup**. The printer then changes to Setup mode and the first of the 14 main levels is then displayed.

Program your printer in the usual way for the test printout to change the parameters. See section *Programming via the control panel*.
Some changes in menu mode may cause the printer to reinitialize; in this case the Rolling ASCII test is aborted.

By pressing the key Setup you exit Setup mode and the printer once again returns to Rolling ASCII test mode test mode.



Testmode Off is displayed. Press the key **Online**, the test printout starts.

The self-test can be interrupted by pressing the key **Online** which will stop printing and put the printer into Offline status.

Before you begin printing, you can adjust the paper for the printout with soft keys ↑ and ↓.

```
3456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^
 456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]
  56789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\
   6789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
    789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
     89:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXY
      9:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWX
       :;<=>?@ABCDEFGHIJKLMNOPQRSTUVW
        ;<=>?@ABCDEFGHIJKLMNOPQRSTUV
```

Example of an ASCII test printout

If you selected a PS font, the printed length of the lines varies.

This test can also be used to determine and set the optimal print-head gap (see the section *Setting the print head gap*).

Exiting Rolling ASCII test mode

The self-Rolling ASCII test mode test mode can only be terminated by switching off your printer. For this operation the printer must be Offline.

STOP **If you want to stop the test printout before you switch off the printer, then press the key Online.**

Interface test (Hex-Dump)

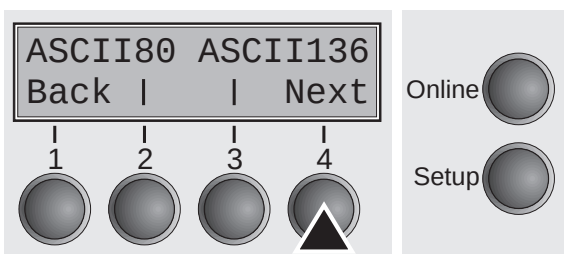
With the interface test (Hex-Dump/H-Dump) you can test data transmission from the computer to the printer. During this test, the data from the computer is printed out in two columns. The text in the left column is printed in hexadecimal format and in the right column in ASCII format.

Printout in Hex-Dump

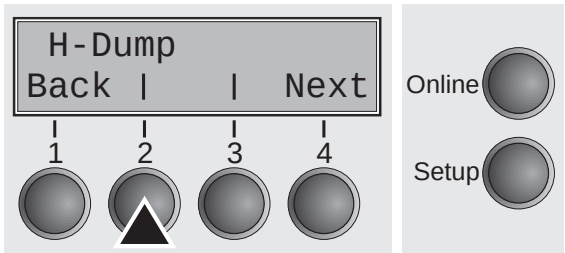
Put the printer into Test mode by pressing the key **Online** while switching on the printer.

Press the key Online until Test mode is shown on the display.

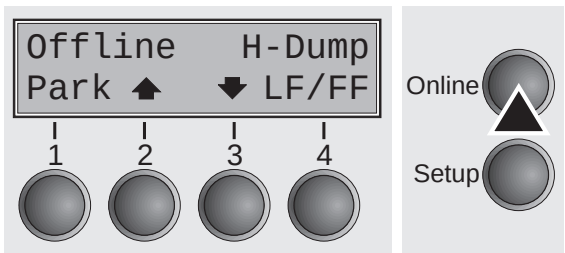
The display shows **Test mode** for approx. 1 second and then automatically changes to display **ASCII 80 ASCII 136**.



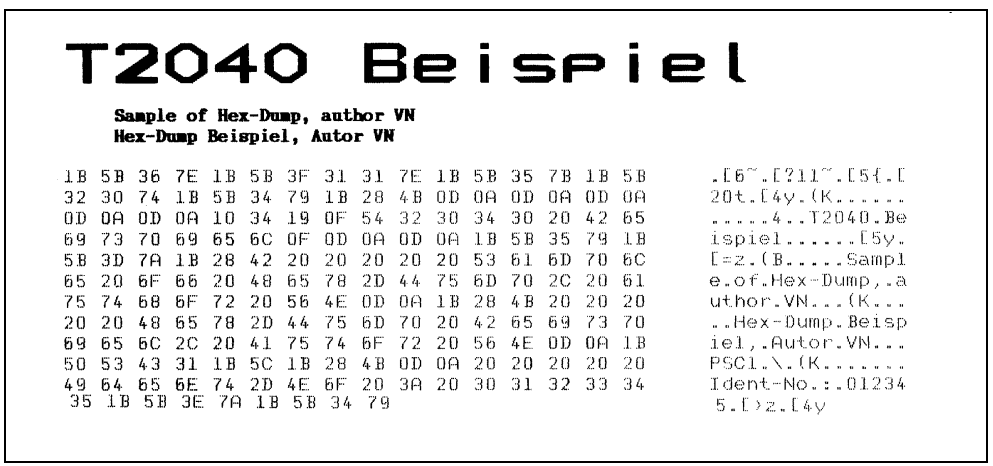
Press the key **Next**, the display shows the next menu level.



If you press the key **H-Dump** you select the H-Dump mode and **Offline H-Dump** is shown on the display.



Put the printer into **Online H-Dump** mode by pressing the key **Online**. The printer is now ready to receive data from the computer and to print it out in plain text. The printed data can now be analyzed and evaluated (see chapter *Emulations*).



T2040 Beispiel

Sample of Hex-Dump, author VN
Hex-Dump Beispiel, Autor VN

```
1B 5B 36 7E 1B 5B 3F 31 31 7E 1B 5B 35 7B 1B 5B     .[6~.[?11~.[5{.[
32 30 74 1B 5B 34 79 1B 28 4B 0D 0A 0D 0A 0D 0A     20t.[4y.(K......
0D 0A 0D 0A 10 34 19 0F 54 32 30 34 30 20 42 65     .....4..T2040.Be
69 73 70 69 65 6C 0F 0D 0A 0D 0A 1B 5B 35 79 1B     ispiel......[5y.
5B 3D 7A 1B 28 42 20 20 20 20 20 53 61 6D 70 6C     [=z.(B.....Sampl
65 20 6F 66 20 48 65 78 2D 44 75 6D 70 2C 20 61     e.of.Hex-Dump,.a
75 74 68 6F 72 20 56 4E 0D 0A 1B 28 4B 20 20 20     uthor.VN...(K...
20 20 48 65 78 2D 44 75 6D 70 20 42 65 69 73 70     ..Hex-Dump.Beisp
69 65 6C 2C 20 41 75 74 6F 72 20 56 4E 0D 0A 1B     iel,.Autor.VN...
50 53 43 31 1B 5C 1B 28 4B 0D 0A 20 20 20 20 20     PSC1.\.(K.......
49 64 65 6E 74 2D 4E 6F 20 3A 20 30 31 32 33 34     Ident-No.:.01234
 35 1B 5B 3E 7A 1B 5B 34 79                          5.[>z.[4y
```

Example of a Hex-Dump printout

After the transmission you must switch the printer to Offline. Any remaining data left in the interface buffer is then printed.

Terminating Hex-Dump

Hex-Dump mode can only be terminated by switching off the printer.

If you want to stop the Hex-Dump printout before switching off the printer, press the key Online.

Mechanical adjustments to the printer

As well as the test functions, you also have the possibility of adjusting the form length (**Forml**) and switching the **AGA** function on or off.

You can also select adjustments which facilitate handling paper which may cause problems in printing due to its structure (**Paphand**).

The **CX-bid** menu option controls the bidirectionality of the parallel interface.

With the function **Wrap**, you can set line wrap and with the function **Sound** beep at paper end.

The function **Pap.back** allows printing on paper with a dark back.

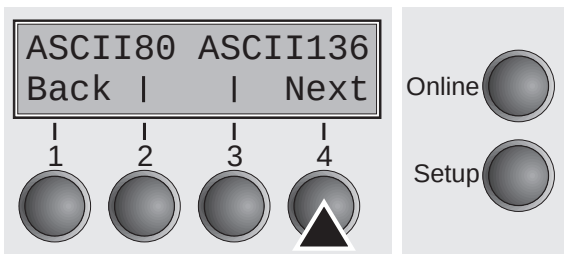
Setting the Formlen function

The **Formlen** function allows you to set the basic form length to meet your requirements. 12 inches are usual in Europe, as opposed to 11 inches in the USA.

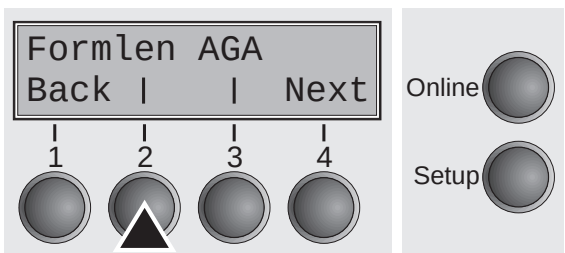
Put the printer into Test mode by pressing the key **Online** while switching on the printer.

Press the key Online until Test mode is shown on the display.

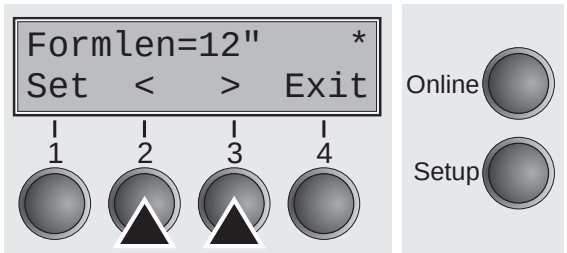
The display shows **Testmode** for approx. 1 second and then changes automatically to **ASCII80 ASCII136**.



Press the **Next** key twice.



Select the **Formlen** menu.



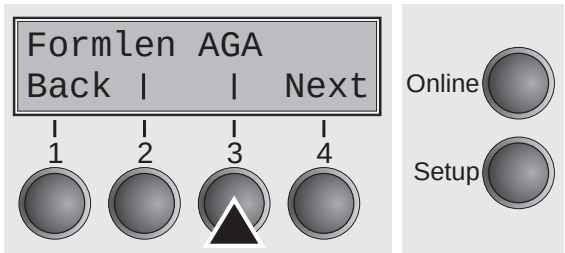
Setting options: **12** inches or **11** inches
Default setting: 12 inches for 220–240 V printers
11 inches for 120 V printers

The value defined here is set in all three menus and for all paper paths. The setting made here is not changed by loading the default (factory) settings by pressing all four function keys (see section *Key functions when turning on the printer*).

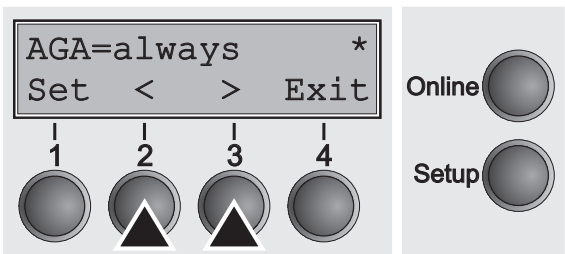
Confirm your setting by pressing the key **Set**.

Setting the AGA function

This function allows you to switch the Automatic Gap Adjustment (AGA) off or on.



Select the **AGA** menu.



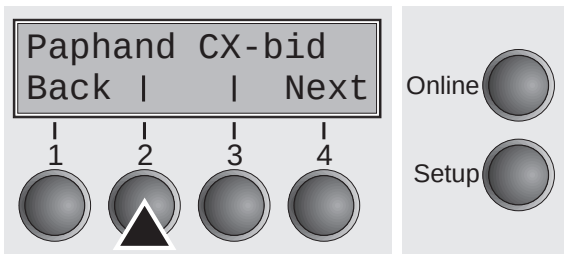
Setting options: **Off/once/always**
Default setting: **always**
AGA=always: The printer checks the paper thickness:
– after power-on
– in single-sheet mode: every sheet
– in fanfold paper mode: each time the paper path is changed and at paper end.
AGA=once: The printer checks the paper thickness only once after power-on for each selected paper path and after paper end.
AGA=Off: selects manual gap adjustment; the value can be set for each paper source and each of the 3 menus available.

Confirm the setting by pressing the key **Set**. The printer automatically leaves Testmode and assumes Online mode.

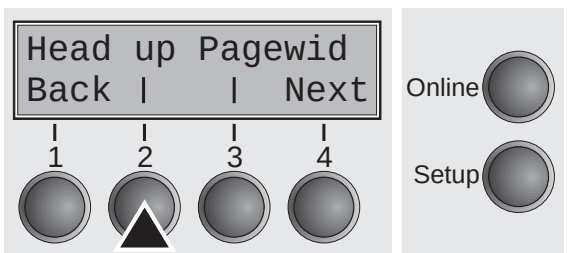
Setting the Paphand function

The **Paphand** group of menus improves the possibilities for the trouble-free printing of paper with properties likely to cause problems (perforations, carrier strips, etc.) or poor quality paper.

Put the printer into Test mode by pressing the key **Online** while switching on the printer. The display shows **ASCII80 ASCII136**. Change to the parameter group **Formlen AGA** by pressing the key **Next** three times.

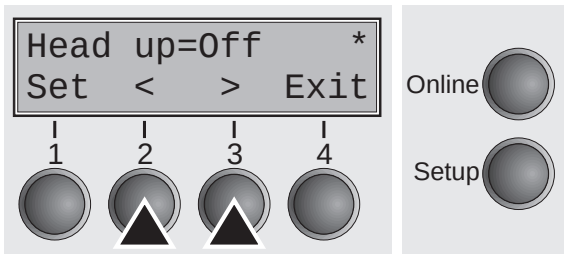


Select the **Paphand** menu (the abbreviation stands for “paper handling”).



Select the **Head up** menu.

Head up

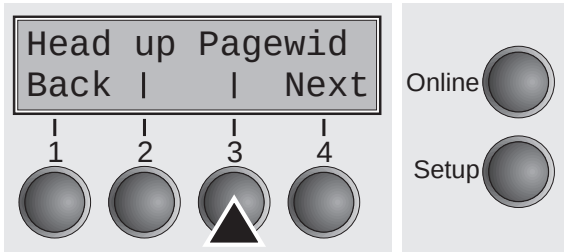


Setting options: **On/Off**
Default setting: **Off**

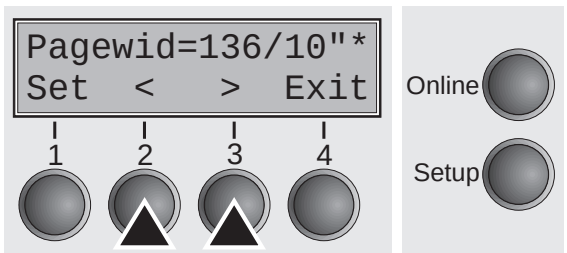
If the parameter is set to **On**, the printhead gap increases during form feed and line feed four lines before and after the perforation on the form (protected zone). The printhead gap is always increased during form feeding past the perforation even when feeding takes place outside the protected zone.

Confirm your settings by pressing the key **Set**.

Pagewid



Select the **Pagewid** menu (stands for page width).

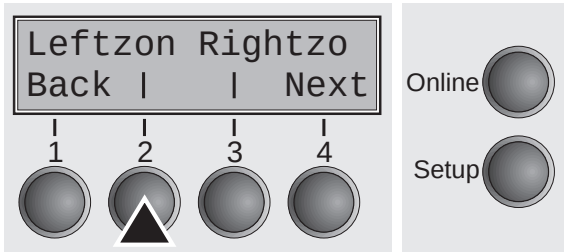


Setting options: From **20** to **136** in 1/10 inch steps
Default setting: **136/10 Zoll** (136 characters at 10 characters/inch)

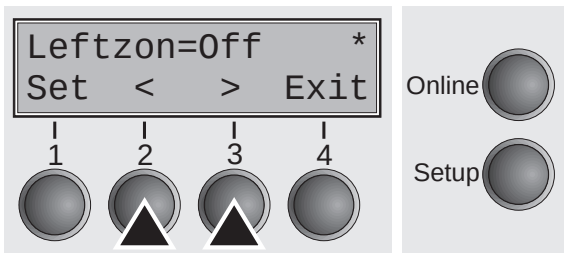
This parameter determines the actual paper width. If **Head up = On**, the printhead moves to the calculated centre of the paper during the time the paper is moving in the protected zone. If **Rightzo = On** (see below), the printhead moves out of the perforation zone on the right as long as the paper is being transported.

Confirm your settings with the key **Set** and press the key **Next** to access the next group of parameters.

Leftzon



Select the **Leftzon** menu (stands for left zone).

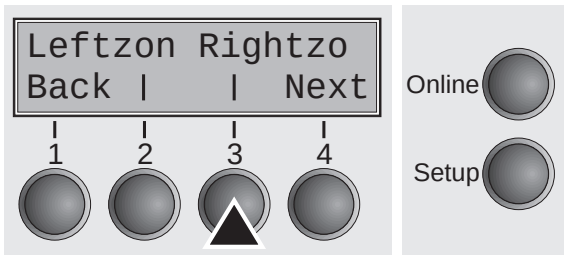


Setting options: **On/Off**
Default setting: **Off**

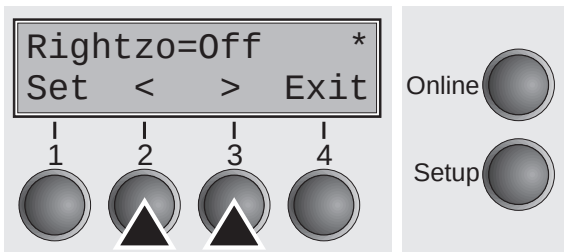
If the parameter is **On**, the printhead moves out of the perforation zone (area) on the left as long as the paper is being transported. The **Pagewid** setting has no influence (see above).

Confirm your settings with the key **Set.**

Rightzo



Select the **Rightzo** menu (stands for right zone).

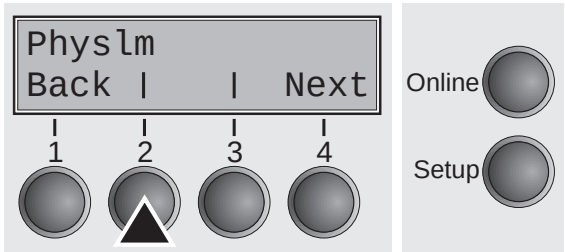


Setting optionss: **On/Off**
Default setting: **Off**

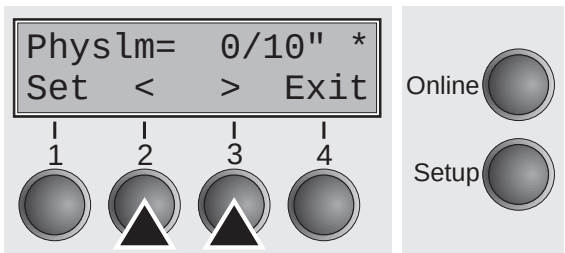
If this parameter is **On**, the printhead moves out of the perforation zone on the right as long as the paper is being transported. The **Pagewid** option must be correctly set in this case (see above).

Confirm your setting with the key **Set** and press the key **Next** to access the next group of parameters.

PhysIm



Select the **PhysIm** menu (stands for physical left margin).



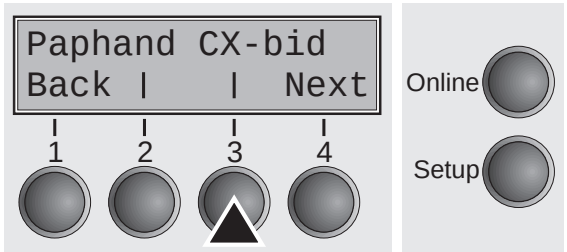
Setting otpions: **0** to **30** in 1/10 inch steps
Default setting: **0 1/10** inch

Permanent (physical) setting of the left margin. This parameter cannot be changed by emulation-dependent margin settings. Margin setting values entered by ESC sequences are added to the **PhysIm**.

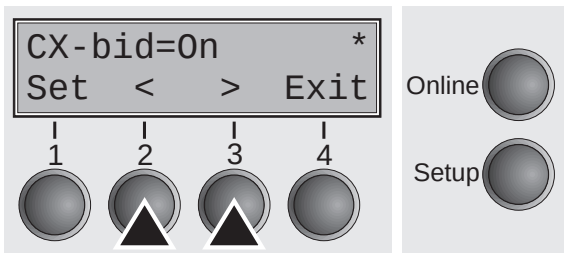
All parameters described in the Paphand group may also be defined via an ESC sequence (see chapter *Emulations* or the *Programmer's Application Manual*.

Confirm your settings by pressing the key **Set**.

CX-bid



Select the **CX-bid** menu.

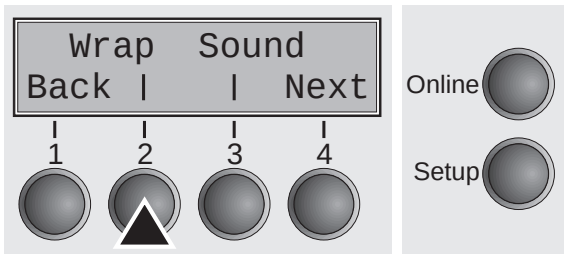


Setting options: **On/Off**
Default setting: **On**

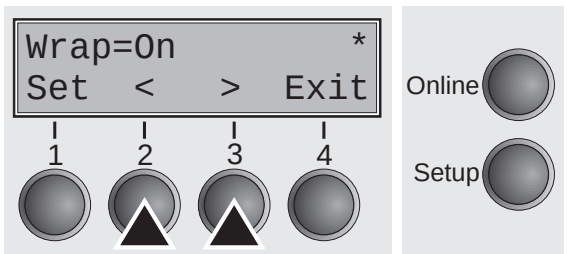
CX-bid = ON sets the parallel interface of the printer to bidirectional mode (IEEE 1284). **CX-bid = OFF** sets the interface to compatibility mode in order to ensure reliable operation with special external boxes.

Confirm your settings by pressing the key **Set**. Change to the next parameter group with the key **Next**.

Wrap

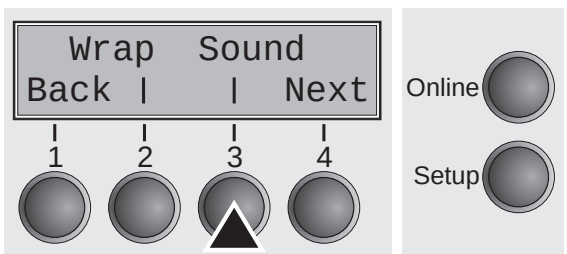


Select the **Wrap** menu.

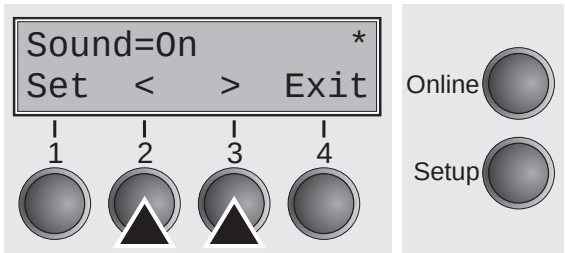


Setting options: **On/Off**
Default setting: **On**
Wrap=On: If more characters than can be printed are transmitted per line, the characters which cannot be printed on this line are printed at the beginning of next line. **Wrap=Off**: If more characters than can be printed are transmitted per line, the characters which cannot be printed on this line are cut off.
Confirm your settings by pressing the key **Set.**

Sound



Select the **Sound** menu.

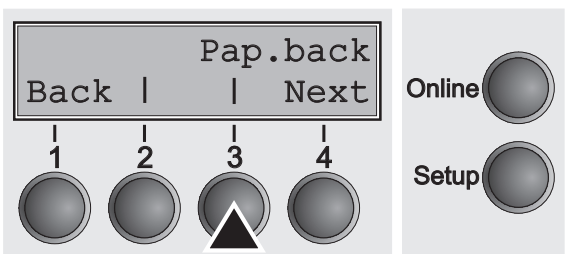


Setting options: **On/Off**
Default setting: **On**

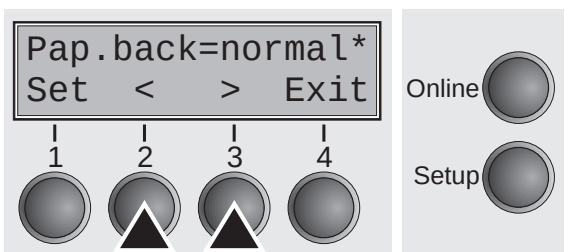
When **Sound = On**, a beep is generated every second to notify that paper is empty.

Confirm your settings by pressing the key **Set.**

➤ Pap.back



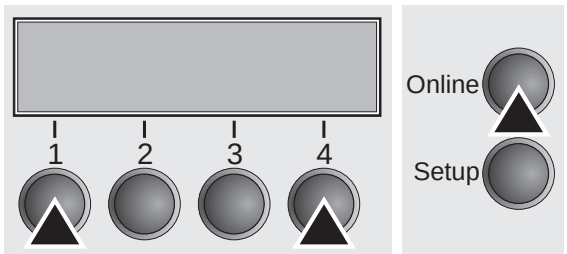
Select the **Pap.back** menu.



Setting options: **normal/dark**
Default setting **normal**
Pap.back = normal is the standard for normal paper. **Pap.back = dark** can be set to process paper with a grey back.

Paper with a completely black back side cannot be used if the ink is carbon-based. However, the printer can handle aniline-based black paper.

Loading firmware

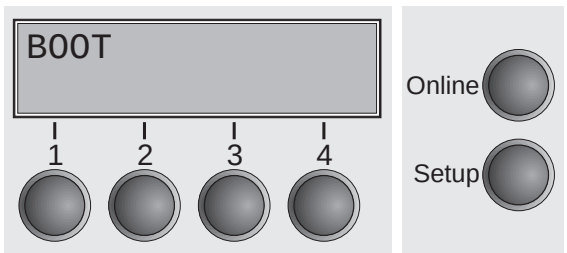


To load new firmware, proceed as follows.

1. Switch off the printer. Connect your DOS PC (LPT1:) to the parallel port on the printer.

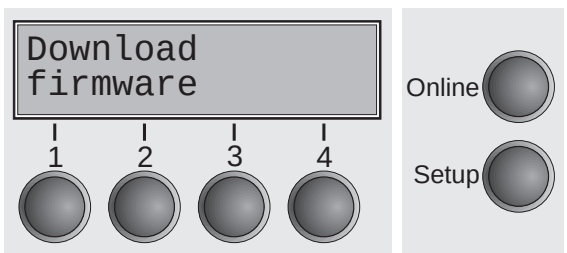
2. Press keys 1, 4 and Online. Hold the keys pressed.

3. Switch on your printer.



The printer is ready for the download when BOOT appears on its display.

4. Copy the file, e.g. DOWNLOAD.FDF, from the diskette (A:) to your printer as follows:
   `A:\COPY /B DOWNLOAD.FDF PRN`



A progress indicator (bar) and DOWNLOAD FIRMWARE appears on the display during the download; alternatively, an error message is displayed:
PRG = Firmware
GEN = Character set or font (character generator)
P+G = Firmware and character set
The frame currently being transferred appears in the top row on the right of the display.

DOWNLOAD OK is displayed briefly when the procedure has been completed successfully. The printer then runs through its initialisation routine, after which it is ready for use.
It is possible to repeat the download separately, e.g. firmware followed by character generator.

➤ Loading the operating system for the first time

Connect your DOS PC (LPT1:) to the parallel port on the printer. Start from no. 3 in the description above.

➤ Troubleshooting

It is necessary to repeat the entire procedure if an error occurs during the download. This is indicated by a corresponding message on the display. It may be that not all fault messages can be shown on the display. In this case, the operating system of your PC displays an error message such as “Write error on device…”.

Troubleshooting

Many of the faults and problems which may occur while using the printer are minor problems which you can solve yourself. The following chapter should help you to distinguish between a simple operating error and a major malfunction.

This chapter provides information on the rectification of faults without the assistance of specially trained personnel. Follow the advice and tips in this chapter if your printer is not working correctly.

Important notes on the care and maintenance of your printer can be found at the end of this chapter.

Repairs should only be performed by authorised service personnel.

The display remains dark

The printer is switched on, but nothing happens (nothing is displayed, no noise).

Switch off the printer and proceed as follows:

1. Check that the power plug is correctly connected to the socket on the printer.
2. Check that the power plug is seated properly in the wall socket.
3. Switch on the printer again. If the printer is now connected correctly then the LED for the selected sheet feeder lights up, **Online** is shown on the display and the printhead moves to the start position.

If these steps do not eliminate the fault:

- Replace the power cord and repeat step 3.
- Check that power flows at the socket e.g. using a desk lamp, if necessary use a different socket and repeat step 3.
- Contact your dealer if the printer cannot be powered up.

Do not attempt to open the printer. You might suffer an electric shock.

The display is lit, but the printer does not print

1. Check that the printer is **Online**. If the displays shows **Offline**, then press the key **Online**. Try to print again.

2. Check the connection from the printer to the computer (interface cable).

- Check that the interface cable is properly connected to the computer and to the printer.
- Check that it is the correct interface cable for your printer. Information on the interface is located in the section *Connecting the printer to the computer* and in chapter *Interfaces*.
- Check that the printer is properly adapted to the computer (configured). Refer to chapter *Menu description table*. Check the parameter set in the **Setup** menu under I/O (serial/parallel) and if necessary correct it.

3. Check that paper is inserted and loaded. Refer to the section *Inserting paper*.

Problems with the paper feed

The paper is not fed in.

1. Check that the display shows the correct paperway, if necessary select the correct paperway (single sheet or fanfold) with the key **Park**. See *Paper path quick selection*.
2. Make sure that the paper guide is correctly adjusted at the side.
3. When using single sheets, push the paper fully into the paper feed.

When having torn off the fanfold paper and after switching over from fanfold paper to single sheets, the fanfold paper moves to the park position.

4. Check that the fanfold paper is in the park position when you insert a single sheet. This means the fanfold paper should not be loaded (pulled in). To check this, raise the guide of the single sheet feeder.

If necessary, drive the remaining paper manually to the park position with the key ↓.

Paper jam (fanfold paper)

1. Open the top cover. If a paper jam should occur, then remove the jammed paper by tearing it off at the tear off edge (the tear off edge is located at the outfeed for the fanfold paper).
2. Press the key ↓ to transport the paper backwards (substitutes manual knob).
3. You may support the paper return feed by cautiously pulling the paper in the correct direction.

   Before you replace the fanfold paper, refer to the instructions in the section *Inserting paper*.

   You should pay special attention to the following points:

- Insert the paper straight.
- After inserting the paper, close the tractors.
- Adjust the tractors, the paper should be positioned in the tractors straight but without tension.
- Adjust the printhead gap to the paper thickness (multiple forms, etc.).
- Clean upper friction (see *Care and maintenance*).

Paper jam (single sheets)

Open the top cover and remove the paper manually or with the functions **LF** (line feed)/**FF** (form feed) in Offline mode from the printer.

Before you replace the single sheet, refer to the instructions in the section *Inserting paper – single sheets*.

Pay attention to the following points:

- Set single sheet feed to the corresponding paper width.
- Insert the paper straight as far as possible.
- Adjust the printhead gap to the paper thickness (multiple forms, etc.).

Paper does not move to tear off position

Single sheet inserted.

It is only possible to tear off when fanfold paper is used, refer to the section *Moving paper to the tear position*.

Problems with the print quality

Print is too pale

1. The ribbon is used up or the ribbon cassette is not correctly fitted. Refer to the section *Changing the ribbon cassette*.
2. The printhead to platen gap is not correctly set, refer to the section *Setting the printhead gap*.

   For printers with the **AGA = ON**:
   Enter a correction value <0. See the section *Setting the printhead gap*.

Smudged print

1. The ribbon is damaged (e.g. frayed). Change the ribbon as described in the section *Changing the ribbon cassette*.
2. The printhead gap is too small, increase the gap. See the section *Setting the printhead gap*.

   For printers with the **AGA = ON**:
   Enter a correction value >0. See the section *Setting the printhead gap*.

Prints undefined characters

1. Check that the interface plug is correctly connected to the computer and to the printer.
2. Check that the proper emulation and the correct character set (country, CG table or character set) is selected in the **Setup** menu.
3. Check the length of the interface cable (see *Technical specifications*).

The first line is not completely printed out at the top

Check the function **FormAdj**. Refer to the chapter *The menu.*

Dots within characters are missing

1. Check whether the ribbon is damaged, if necessary replace it (see the section *Changing the ribbon cassette*).
2. Set the correct printhead gap.
3. Check whether the platen is damaged.
4. Check whether the printhead is damaged.

In case of points 3 or 4, please contact your dealer.
Please use original ribbon cassettes only.

Error messages via the display

Load paper from ...

The paper has run out during operation. The printer has been switched on, but no paper has been inserted. Insert paper in the active sheet feeder.

- The paper is not fed past the light barrier.
- Place the paper more to the left.

Printhead hot

The printer prints at lower speed, no action required.
When this message comes up even in a “cold” printer, please contact your dealer.

Cover open

Top cover is open, close it.

Parity Error

Transmission error from computer to printer via the optional serial interface

- Compare the interface configuration of your printer with the settings of your computer (protocol).
- Check the cable, if necessary replace it.
- The cable exceeds the maximum allowed length.

Frame Error

Transmission error (serial interface)

- Compare the format setting of your printer with the setting of your computer.
- Check the permissible cable length.
- See parity error.

Hardware Alarm

No internal power. Try switching off and on. Check if changes to options have been previously carried out. Note down the display message. Contact your dealer.

Overrun Error

Received data which has not yet been printed is overwritten with new data.

- Check that the correct busy protocol (e.g. XON XOFF) is set in the menu **Serial interface, protocol**.
- Check the interface cable (see section *Connecting the printer to the computer* and in chapter *Interfaces*).

Eject Error

The printer cannot eject the paper or cannot place the paper in the park position. Check the following:

- Whether the paper path is blocked by a foreign object.
- Whether the paper is damaged.
- Whether the upper friction is down and clicked into place.
- Whether the printhead gap is too small.

Load Error

The printer cannot feed in the loaded paper, check the following:

- Whether the paper path is blocked by a foreign object.
- Whether the paper is damaged.
- Whether the tractors are closed and locked.
- Whether the paper is too tight or loose.
- Whether the paper is within the specified range.

Paper Jam

Eliminate the paper jam detected by the paper motion sensor. For the procedure, see paper jam (fanfold paper) or paper jam (single sheets).

Additional display messages

These are not error messages, they give operating instructions and information from the printer to the user.

Press any key	To proceed press any key.
Loading Default	The factory-set parameters are loaded and are written into all menus.
Only available in Epson mode	Functions which have no meaning in this emulation have been selected. For this function please switch to the appropriate emulation in the menu.
Park position	You are informed when the fanfold paper is in the park position.
Tear paper off	Note for the operator to tear off the paper automatically positioned at the tear off edge.
Load paper from single	Paper is not available in the selected paper path. Data is in the interface receiver buffer.
Remove paper in xxx	The paper path has been changed (xxx indicates the paper path). Please remove any remaining paper in the printer manually.

Care and maintenance

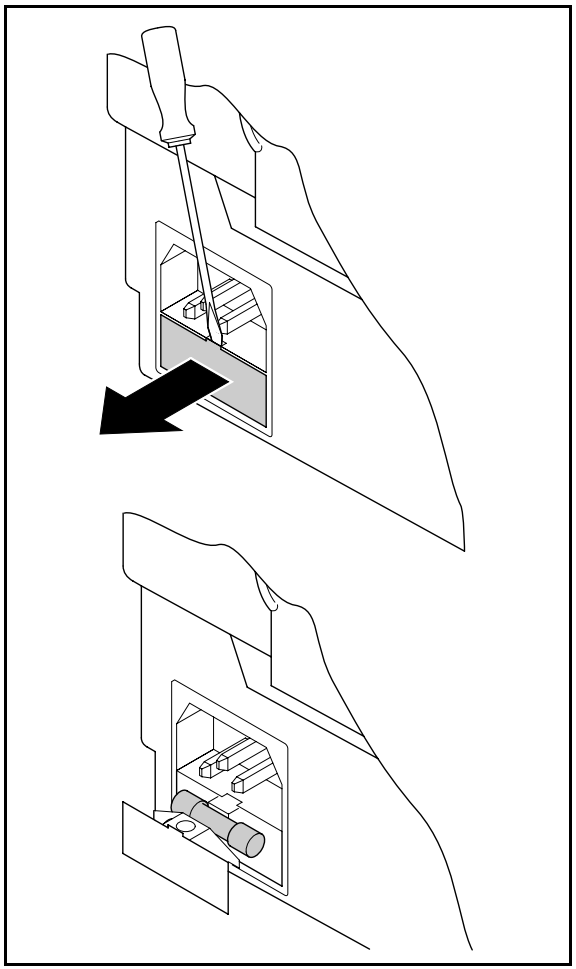
The printer is designed to operate with minimal maintenance. It is recommended to check the ribbon from time to time and to clean the platen.

Preventive maintenance is not necessary.

Before cleaning, turn off the printer and disconnect the power cable.

Do not oil or grease the printer, especially the sliderails and shafts.

Replacing the fuse



The printer is provided with a power supply fuse which is accessible directly from the outside.
Open the small compartment below the power supply connector with a screwdriver and pull out the compartment completely. Remove the defective fuse and replace it by a new fuse of the same type.

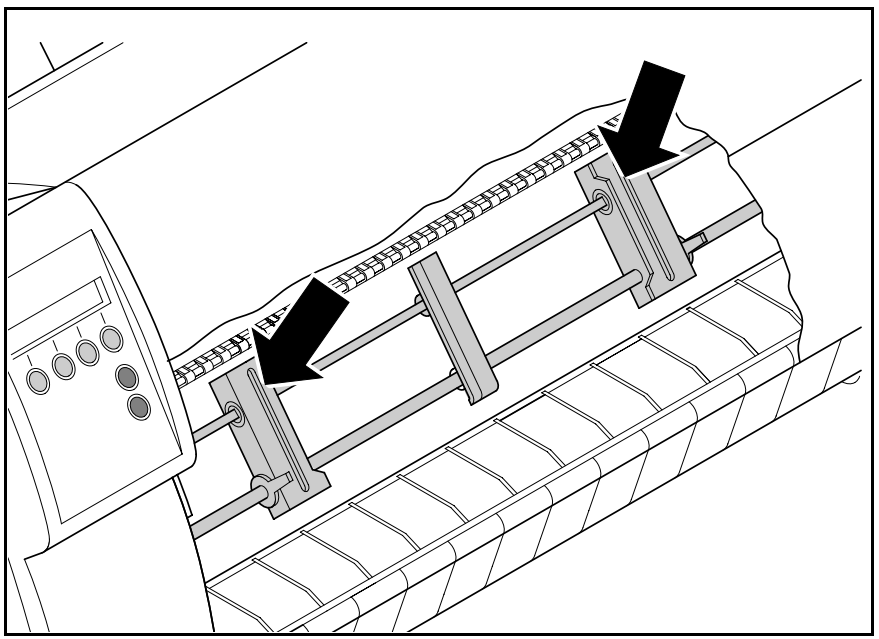
Cleaning the housing

Clean the printer housing with mild detergent (or a plastic cleaning agent) and a soft lint-free cloth.

STOP **Do not use abrasive cleaners. Never use solvents.**

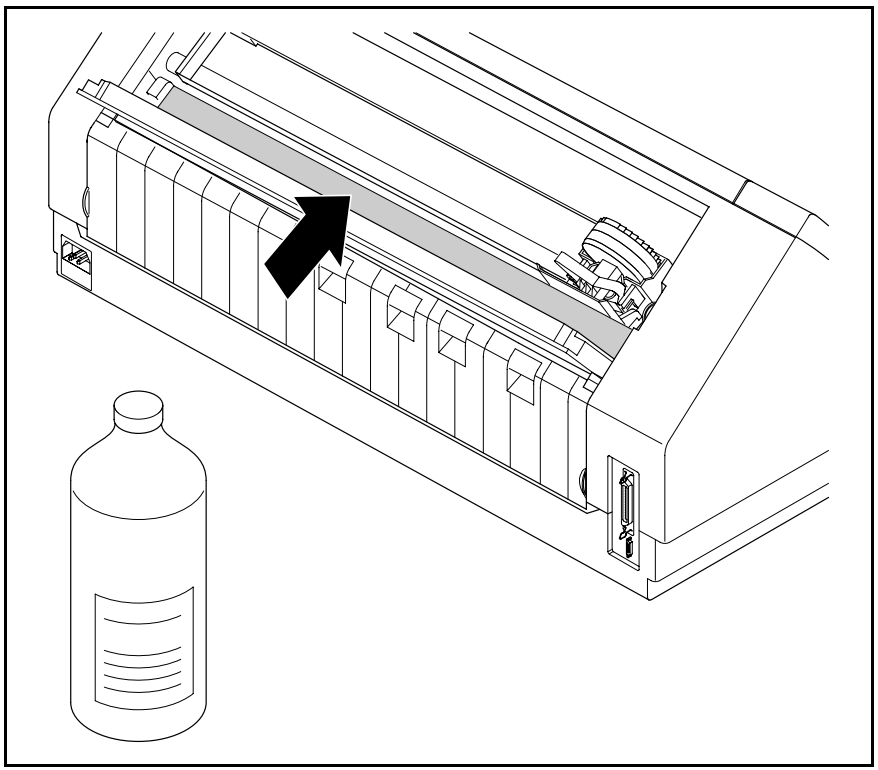
Cleaning the interior

Remove paper and dust (ribbon deposits) with a soft brush.



Check that any paper has been removed from the tractors.

Platen



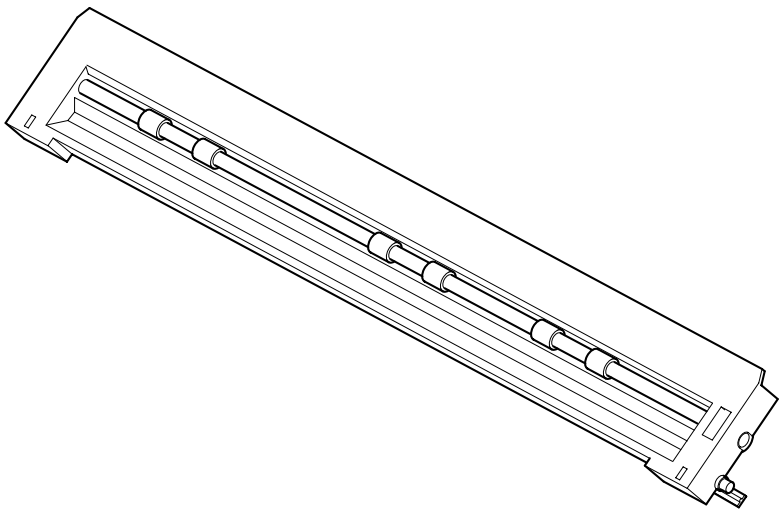
Remove the ribbon. Carefully clean the platen with platen roller cleaner (available from dealers).

Ribbon

Check whether the ribbon is worn or damaged. The ribbon must be replaced if it is frayed, see *Changing the ribbon cassette*.

The service life of the ribbon is 3,5 million characters for the narrow printer and 5 million characters for the broad printer.

Upper friction



Clean the rollers of the upper friction as necessary with a mild cleaning agent and a soft, lint-free cloth.

Carriage shafts

STOP

Carriage shafts must not be greased; otherwise damage will occur on the printer.

Emulations

General

When a printer understands the control set written for another printer type, it is said to emulate the other printer. Your printer emulates, i.e. “understands” the Epson LQ-2550 in its standard version.

Escape sequences

Escape sequences or control codes tell the printer that the following transmitted code is a printer command and not a printable character. They allow the selection of printer functions or the changing of printer parameters from the computer. By transmitting an escape sequence, you are able to change the previously set configuration of the printer (e.g. character set).

This chapter contains an introduction into the sequences and control codes which are used by your printer.

The settings made by escape sequences have priority over the settings made in menu mode; therefore they override these.

What are escape sequences?

Generally, an escape sequence consists of an ESCape control character (ESC = decimal 27 or hexadecimal 1B) followed by one or more characters, which represent commands to the printer. Please note that this escape character has nothing to do with the ESC key on your computer keyboard.

For example, the control character ESC followed by the character “4” tells your printer to print the subsequent text in italics.

MTPL sequences

Apart from the standard Escape sequences and control codes your printer is equipped with MTPL sequences. These sequences provide a large number of additional ways to control your printer. Many functions can only be carried out using the MTPL sequences as you will see when you look at the list of available command codes.

What are control codes?

Control codes are similar to escape sequences because they instruct the printer to do a specific function. However, unlike escape sequences, control codes do not begin with the ESC control code. Instead, they consist of special single-character non-printing commands (e.g. LF, FF, DC2).

The $$ procedure

Most of the printer functions can be selected with control sequences (ESC sequences). For this purpose, the signal character ESC, followed by the specific sequence must be transmitted from the computer to the printer.

This ESC character is automatically substituted when two $ characters ($$) are placed immediately after each other in the text and is transmitted to the printer or if the parameter **Escape=ESC+$$** is selected in the printer menu.

Example:

In the MTPL + IBM Proprinter emulation, bold print can be switched on by the sequence <ESC>E and can be switched off with the sequence <ESC>F.

Input:	`Highlight the word $$E Printer $$F with bold print`
Output:	`Highlight the word` **`Printer`** `with bold print`

This procedure is significant when you are working with older text programs that do not have any or an inadequate printer driver. It is also possible to insert ESC sequences in normal ASCII texts (e.g. program listings) with this procedure. The function of the ESC character remains unaffected.

How are escape sequences used?

Escape sequences are transmitted to the printer by your computer software. Many software applications allow insertion of escape sequences and control codes within the generated text. Before you start working with escape sequences and control codes, we recommend that you study the computer software manual.

The selected emulation must correspond to the printer driver of your application program.
Settings caused by ESC sequences remain valid, until they are switched off by another control code. All settings are reset to the original menu, when the printer is switched off.

MTPL

As the emulations do not cover the entire scope of your printer, a new printer language has been created. Using MTPL you are able to optimize operation and handling.

MTPL can be used in connection with other emulations or can be used alone.

Example in BASIC

```
open “LPT1:” as #1
width #1,255

Text1$ = „10 characters/inch”
Text2$ = “15 characters/inch”
ESC$   = chr$(27)

print #1,ESC$;"[4w";Text1$;ESC$;"[6w";Text2$;ESC$;"[4w";Text1$

end
```

Example in Pascal

```
program cpi_example;
uses printer;
const ESC = #27;
            Text1 = “10 characters/inch”;
            Text2 = “15 characters/inch”;

begin

writeln(lst,Esc,"[4w",Text1,ESC,"[6w",Text2,Esc,"[4w",Text1);

end.
```

Printout

After the program has been completed the following text appears:

10 characters/inch 15 characters/inch 10 characters/inch

List of available control codes

The following table shows sequences marked by a ✓ if they are available in the various emulations. The MTPL sequences can be used within all emulation modes. The corresponding sequences are marked by a ✻.

If you want to know more about control codes, we recommend our *Programmer's Application Manual* on this CD-ROM.

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✓		✓	✓	<BEL>	Signal tone
✓	✓	✓	✓	✓	<BS>	Control character BS (Backspace)
			✓	✓	<CAN>	Deleting a data line
✓	✓	✓	✓	✓	<CR>	Control character CR (Carriage return)
✓					<CSI>	Start character for MTPL sequences, corr. ESC [
			✓	✓	<DC1>	Selecting the printer
			✓	✓	<DC2>	Condensed printing OFF (set by <SI> or <ESC><SI>)
			✓	✓	<DC3>	Deselecting the printer
			✓	✓	<DC4>	Double-wide printing OFF (set by <SO> or <ESC><SO>)
✓	✓	✻	✓	✓	<DEL>	Delete line. Epson: Delete last character
✓	✓	✓	✓	✓	<ESC>	Start character for programming sequence
	✓	✓	✓	✓	<ESC>!<n>	Print mode selection
		✓	✓	✓	<ESC>#	Bit 8 = unchanged

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
			✓	✓	<ESC>$<n1>;<n2>	Perform absolute horizontal step
			✓	✓	<ESC>%<0><0>	Select ROM character generator
			✓	✓	<ESC>%<1><0>	Select download generator
✓	✻	✻	✻	✻	<ESC>%3<n1>;<n2>	Graphics print with 60 dpi
✓	✻	✻	✻	✻	<ESC>%4<n1>;<n2>	Graphics print with 120 dpi
✓	✻	✻	✻	✻	<ESC>%5<n1>;<n2>	Graphics print with 80 dpi
✓	✻	✻	✻	✻	<ESC>%7<n1>;<n2>	Graphics print with 240 dpi
✓	✻	✻	✻	✻	<ESC>%8<n1>;<n2>	Graphics print with 72 dpi
✓	✻	✻	✻	✻	<ESC>%9<n1>;<n2>	Graphics print with 90 dpi
			✓	✓	<ESC>&<s><x><y>..	Define download character
✓	✻	✻	✻	✻	<ESC>(&	Character set ISO 8859-2
✓	✻	✻	✻	✻	<ESC>(*	Character set ISO 8859-5
✓	✻	✻	✻	✻	<ESC>(+	Character set ISO 8859-1 SAP
✓	✻	✻	✻	✻	<ESC>(.	Character set ISO 8859-9
✓	✻	✻	✻	✻	<ESC>(/	Character set ISO 8859-15
✓	✻	✻	✻	✻	<ESC>(<	Character set Cro ASCII
				✓	<ESC>(c	Defining the page format
				✓	<ESC>(v	Relative vertical printing position
				✓	<ESC>(t	Assigning a character table
✓	✻	✻	✻	✻	<ESC>(m	Character set BRASCII

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>(n	Character set Abicomp
✓	✻	✻	✻	✻	<ESC>(p	Windows character set 1250 (Latin2)
✓	✻	✻	✻	✻	<ESC>(q	Windows character set 1251 (Cyrillic)
✓	✻	✻	✻	✻	<ESC>(r	Windows character set 1252 (Latin1)
✓	✻	✻	✻	✻	<ESC>(t	Windows character set 1254 (Turkish)
✓	✻	✻	✻	✻	<ESC>(‘	Character set Norwegian
✓	✻	✻	✻	✻	<ESC>(A	Character set UK-ASCII
✓	✻	✻	✻	✻	<ESC>(B	Character set US-ASCII
				✓	<ESC>(C	Defining the page length
✓	✻	✻	✻	✻	<ESC>(*F*	Assign character set G0
				✓	<ESC>(G	Selecting graphics mode
✓	✻	✻	✻	✻	<ESC>(H	Character set Swedish-Finnish
✓	✻	✻	✻	✻	<ESC>(K	Character set German
✓	✻	✻	✻	✻	<ESC>(L	Character set Portuguese
✓	✻	✻	✻	✻	<ESC>(R	Character set French
				✓	<ESC>(U	Setting positioning units in n/3600 inch
				✓	<ESC>(V	Absolute vertical printing position
✓	✻	✻	✻	✻	<ESC>(Y	Character set Italian
✓	✻	✻	✻	✻	<ESC>(Z	Character set Spanish
✓	✻	✻	✻	✻	<ESC>)*F*	Assign character set G1

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
		✓	✓	✓	<ESC>*<0><n1>;<n2>	Set graphics print to 60 dpi
		✓	✓	✓	<ESC>*<1><n1>;<n2>	Set graphics print to 120 dpi
		✓	✓	✓	<ESC>*<2><n1>;<n2>	Set graphics print to 120 dpi
		✓	✓	✓	<ESC>*<3><n1>;<n2>	Set graphics print to 240 dpi
		✓	✓	✓	<ESC>*<32><n1>;<n2>	Set graphics print to 60 dpi
		✓	✓	✓	<ESC>*<33><n1>;<n2>	Set graphics print to 120 dpi
		✓	✓	✓	<ESC>*<38><n1>;<n2>	Set graphics print to 90 dpi
		✓	✓	✓	<ESC>*<39><n1>;<n2>	Set graphics print to 180 dpi
		✓	✓	✓	<ESC>*<4><n1>;<n2>	Set graphics print to 80 dpi
		✓	✓	✓	<ESC>*<40><n1>;<n2>	Set graphics print to 360 dpi
✓	✻	✻	✻	✻	<ESC>**F*	Assign character set G2
	✓	✓	✓		<ESC>-<n>	Underlining ON/OFF
			✓		<ESC>/<m>	Select vertical tab channels
				✓	<ESC>.	Printing raster graphics
	✓	✓			<ESC>:	Condensed printing 12 cpi ON
			✓	✓	<ESC>:<0><n><m>	Copy ROM character set
			✓	✓	<ESC><	Unidirectional printing for 1 line
			✓	✓	<ESC>=	Set bit 8 = 0
	✓	✓			<ESC>=<C1><C2>...	Load font/character set
			✓	✓	<ESC>>	Set bit 8 = 1

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
			✓	✓	<ESC>?<s><n>	Reload a graphics mode
			✓	✓	<ESC>@	Initialize printer
✓	✻	✻	✻	✻	<ESC>[	MTPL start character for programming sequence
✓	✻	✻	✻	✻	<ESC>[:y	Right justification and centering OFF
✓	✻	✻	✻	✻	<ESC>[=z	Bold ON
✓	✻	✻	✻	✻	<ESC>[>z	Bold OFF
✓	✻	✻	✻	✻	<ESC>[?1~	MTPL command set
✓	✻	✻	✻	✻	<ESC>[?10~	Barcode interpretation OFF
✓	✻	✻	✻	✻	<ESC>[?11~	Start barcode interpretation
✓	✻	✻	✻	✻	<ESC>[?4~	MTPL + IBM Proprinter-24 command set
✓	✻	✻	✻	✻	<ESC>[?50h	Selecting character sets with 256 characters
✓	✻	✻	✻	✻	<ESC>[?50l	Selecting character sets with 94 characters
✓	✻		✻	✻	<ESC>[?51h	Proportional fonts automatic NLQ and LQ
✓	✻		✻	✻	<ESC>[?51l	Proportional fonts in draft mode possible (default)
✓	✻	✻	✻	✻	<ESC>[?52h	Font selection (ESC[10...19m]) possible only for print quality NLQ/ LQ
✓	✻	✻	✻	✻	<ESC>[?52l	Font selection (ESC[10...19m]) Draft possible (default)
✓	✻	✻	✻	✻	<ESC>[?53h	Extended character set
✓	✻	✻	✻	✻	<ESC>[?53l	Standard character set
✓	✻	✻	✻	✻	<ESC>[?6~	MTPL + EPSON LQ command set
✓	✻	✻	✻	✻	<ESC>[?7h	Line overrun = CR + LF

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[?7l	Line overrun = Truncating data outside of the printing area
✓	✻	✻	✻	✻	<ESC>[?<n>~	Change emulation
	✓	✓			<ESC>[@<n1>;<n2>...	Set double height
	✓	✓			<ESC>[\<n1>;<n2>...	Change vertical base units
✓	✻	✻	✻	✻	<ESC>[0;;n{	Select single sheet operation
✓	✻	✻	✻	✻	<ESC>[0;0r	Clear top and bottom margin
✓	✻	✻	✻	✻	<ESC>[0;0s	Clear left and right margin
✓	✻	✻	✻	✻	<ESC>[0g	Clear horizontal tab at the current printhead position
✓	✻	✻	✻	✻	<ESC>[0m	Clear all selected fonts
✓	✻	✻	✻	✻	<ESC>[0m	Reset colour
✓	✻	✻	✻	✻	<ESC>[0 SP I	Measuring unit decipoint
✓	✻	✻	✻	✻	<ESC>[0 SP K	Set horizontal pitch to 10 cpi
✓	✻	✻	✻	✻	<ESC>[0 SP L	Set vertical spacing to 6 lpi
✓	✻	✻	✻	✻	<ESC>[0 SP X	High print quality
✓	✻	✻	✻	✻	<ESC>[0w	Set 5 cpi
✓	✻	✻	✻	✻	<ESC>[0y	Selecting Copy Draft printing quality
✓	✻	✻	✻	✻	<ESC>[0z	Superscript ON
✓	✻	✻	✻	✻	<ESC>[10m	Font 0 Default: Draft
✓	✻	✻	✻	✻	<ESC>[10 y	Right and centre adjustment OFF
✓	✻	✻	✻	✻	<ESC>[10z	Microscript ON

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[11 e	Set PUM (absolute measuring unit) to OFF
✓	✻	✻	✻	✻	<ESC>[11 h	Set PUM (absolute measuring unit) to ON
✓	✻	✻	✻	✻	<ESC>[11m	Font 1 Default: NLQ Courier
✓	✻	✻	✻	✻	<ESC>[11w	Set 20 cpi
✓	✻	✻	✻	✻	<ESC>[11 y	Select print quality Draft
✓	✻	✻	✻	✻	<ESC>[12m	Font 2 Default: LQ Courier
✓	✻	✻	✻	✻	<ESC>[12 SP K	Set horizontal pitch to 12 cpi
✓	✻	✻	✻	✻	<ESC>[12y	Select print quality LQ
✓	✻	✻	✻	✻	<ESC>[12z	Double height ON (top portion)
✓	✻	✻	✻	✻	<ESC>[13m	Font 3 Default: NLQ S Serif
✓	✻	✻	✻	✻	<ESC>[13z	Double height ON (lower portion)
✓	✻	✻	✻	✻	<ESC>[14m	Font 4 Default: LQ S Serif
✓	✻	✻	✻	✻	<ESC>[15m	Font 5 Default: LQ Roman
✓	✻	✻	✻	✻	<ESC>[15 SP K	Set horizontal pitch to 15 cpi
✓	✻	✻	✻	✻	<ESC>[16m	Font 6 Default: LQ Roman
✓	✻	✻	✻	✻	<ESC>[17m	Font 7 Default: LQ Roman
✓	✻	✻	✻	✻	<ESC>[18m	Font 8 Default: LQ OCRB
✓	✻	✻	✻	✻	<ESC>[19m	Font 9 Default: LQ OCRA
✓	✻	✻	✻	✻	<ESC>[1 g	Clear vertical tab at current position
✓	✻	✻	✻	✻	<ESC>[1 SP k	Printout in Royal Mail Customer Barcode

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[1 SP L	Set vertical spacing to 4 lpi
✓	✻	✻	✻	✻	<ESC>[1 SP p	Initiate US Postnet Barcode
✓	✻	✻	✻	✻	<ESC>[1 SP X	Print quality medium
✓	✻	✻	✻	✻	<ESC>[1w	Set 6 cpi
✓	✻	✻	✻	✻	<ESC>[1y	Print quality NLQ
✓	✻	✻	✻	✻	<ESC>[1z	Subscript ON
✓	✻	✻	✻	✻	<ESC>[21{	ASF-1: Select feeder front
✓	✻	✻	✻	✻	<ESC>[22{	ASF-2: Select feeder rear
✓	✻	✻	✻	✻	<ESC>[21m	Double underlining
✓	✻	✻	✻	✻	<ESC>[23m	Italics OFF
✓	✻	✻	✻	✻	<ESC>[24m	Underline OFF
✓	✻	✻	✻	✻	<ESC>[26m	Proportional font ON
✓	✻	✻	✻	✻	<ESC>[2g	Clear all horizontal tabs in the current line
✓	✻	✻	✻	✻	<ESC>[2J	Print page
✓	✻	✻	✻	✻	<ESC>[2 SP l	Measuring unit decipoint
✓	✻	✻	✻	✻	<ESC>[2 SP k	Printout in Kix Barcode
✓	✻	✻	✻	✻	<ESC>[2 SP L	Set vertical spacing to 3 lpi
✓	✻	✻	✻	✻	<ESC>[2 SP X	Print quality low
✓	✻	✻	✻	✻	<ESC>[2w	Set 7.5 cpi
✓	✻	✻	✻	✻	<ESC>[2y	Proportional font ON

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[2z	Double height OFF
✓	✻	✻	✻	✻	<ESC>[2z	Superscript, subscript and microscript OFF
✓	✻	✻	✻	✻	<ESC>[30m	Black
✓	✻	✻	✻	✻	<ESC>[3g	Clear all horizontal tabs
✓	✻	✻	✻	✻	<ESC>[3m	Italics ON
✓	✻	✻	✻	✻	<ESC>[3 SP L	Set vertical spacing to 12 lpi
✓	✻	✻	✻	✻	<ESC>[3w	Set 8.6 cpi
✓	✻	✻	✻	✻	<ESC>[3z	Line density 6 lpi (= line spacing 1/6 inch)
✓	✻	✻	✻	✻	<ESC>[4g	Clear all vertical tabs
✓	✻	✻	✻	✻	<ESC>[4m	Underline ON
✓	✻	✻	✻	✻	<ESC>[4 SP L	Set vertical spacing to 8 lpi
✓	✻	✻	✻	✻	<ESC>[4w	Set 10 cpi
✓	✻	✻	✻	✻	<ESC>[4y	Selecting NLQ printing quality at 10 cpi
✓	✻	✻	✻	✻	<ESC>[4z	Line density 8 lpi (= line spacing 1/8 inch)
✓	✻	✻	✻	✻	<ESC>[5{	Select fanfold paper mode tractor 1
✓	✻	✻	✻	✻	<ESC>[6{	Select fanfold paper mode tractor 2
✓	✻	✻	✻	✻	<ESC>[7{	Select fanfold paper mode tractor 3
✓	✻	✻	✻	✻	<ESC>[50m	Proportional font OFF
✓	✻	✻	✻	✻	<ESC>[50{	Page at print position
✓	✻	✻	✻	✻	<ESC>[51{	Page at tear off position (perforation)

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[52{	Page at view position
✓	✻	✻	✻	✻	<ESC>[53m	Overlining ON
✓	✻	✻	✻	✻	<ESC>[54{	Cut at current line (option)
✓	✻	✻	✻	✻	<ESC>[55m	Overlining OFF
✓	✻	✻	✻	✻	<ESC>[5n	Request status report
✓	✻	✻	✻	✻	<ESC>[5w	Set 12 cpi
✓	✻	✻	✻	✻	<ESC>[5y	NLQ with 12 cpi
✓	✻	✻	✻	✻	<ESC>[5z	Graphics normal
✓	✻	✻	✻	✻	<ESC>[6~	Initialize the printer
✓	✻	✻	✻	✻	<ESC>[6 SP K	Set horizontal pitch to 6 cpi
✓	✻	✻	✻	✻	<ESC>[6w	Set 15 cpi
✓	✻	✻	✻	✻	<ESC>[6z	Graphics inverted
✓	✻	✻	✻	✻	<ESC>[7w	Set 17.1 cpi
✓	✻	✻	✻	✻	<ESC>[7y	Proportional font OFF
✓	✻	✻	✻	✻	<ESC>[7z	Bit 8 = unchanged
✓	✻	✻	✻	✻	<ESC>[8w	Reset double stroke
✓	✻	✻	✻	✻	<ESC>[8y	Right justification ON
✓	✻	✻	✻	✻	<ESC>[8z	Set bit 8 = 0
✓	✻	✻	✻	✻	<ESC>[9 SP L	Set vertical spacing to 2 lpi
✓	✻	✻	✻	✻	<ESC>[9w	Set double stroke

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[9y	Centering ON
✓	✻	✻	✻	✻	<ESC>[9z	Set bit 8 = 1
	✓				<ESC>[g<n1>;<n2><0>	Set graphics print to 60 dpi
	✓				<ESC>[g<n1>;<n2><1>	Set graphics print to 120 dpi
	✓				<ESC>[g<n1>;<n2><11>	Set graphics print to 180 dpi
	✓				<ESC>[g<n1>;<n2><12>	Set graphics print to 360 dpi
	✓				<ESC>[g<n1>;<n2><2>	Set graphics print to 120 dpi
	✓				<ESC>[g<n1>;<n2><3>	Set graphics print to 240 dpi
	✓				<ESC>[g<n1>;<n2><8>	Set graphics print to 60 dpi
	✓				<ESC>[g<n1>;<n2><9>	Set graphics print to 120 dpi
✓	✻	✻	✻	✻	<ESC>[<n1>;<n2>f	Set absolute horizontal and vertical position
✓	✻	✻	✻	✻	<ESC>[<n>+w	Interface holding time n = 1 - 30 s
✓	✻	✻	✻	✻	<ESC>[<n>+x	Head position horizontal in n/720"; also paper load pos.
✓	✻	✻	✻	✻	<ESC>[<n>+y	Printhead gap n = (0 - 100)
✓	✻	✻	✻	✻	<ESC>[<n>+z	Automatic or manual printhead gap adjustment
✓	✻	✻	✻	✻	<ESC>[<n>SP q	Load menu
✓	✻	✻	✻	✻	<ESC>[<n1>...<n5>+v	Paper handling options
✓	✻	✻	✻	✻	<ESC>[<n1>...<n16>SP r	Print transparent characters
✓	✻	✻	✻	✻	<ESC>[$<n_1>$;$<n_2>$f	Set absolute horizontal and vertical position
✓	✻	✻	✻	✻	<ESC>[$<n_1>$;$<n_2>$SP 0	Change character size

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[<n_1>;<n_2>SP D	Select font
✓	✻	✻	✻	✻	<ESC>[<n_1>;<n_2>SP G	Set character/line spacing
✓	✻	✻	✻	✻	<ESC>[<n1>;<n2>r	Set top and bottom margin
✓	✻	✻	✻	✻	<ESC>[<n1>;<n2>s	Set left and right margin
✓	✻	✻	✻	✻	<ESC>[<n> a	Set relative horizontal position
✓	✻	✻	✻	✻	<ESC>[<n> d	Set absolute vertical position
✓	✻	✻	✻	✻	<ESC>[<n> e	Set relative vertical position
✓	✻	✻	✻	✻	<ESC>[<n> j	Relative horizontal position back (to the left)
✓	✻	✻	✻	✻	<ESC>[<n> k	Relative vertical position back (to the top)
✓	✻	✻	✻	✻	<ESC>[<n> p	Set HMI
✓	✻	✻	✻	✻	<ESC>[<n> q	Set horizontal step
✓	✻	✻	✻	✻	<ESC>[<n> SP \	Set additional spaces
✓	✻	✻	✻	✻	<ESC>[<n> SP C	Select character size
✓	✻	✻	✻	✻	<ESC>[<n> SP f	Set reduced spacing
✓	✻	✻	✻	✻	<ESC>[<n> SP g	Set character spacing
✓	✻	✻	✻	✻	<ESC>[<n> SP h	Line spacing
✓	✻	✻	✻	✻	<ESC>[<n> SP s	Transmits the “n” character as an ASCII character (n= 0–255)
✓	✻	✻	✻	✻	<ESC>[<n> SP U	Beginning of line (default value)
✓	✻	✻	✻	✻	<ESC>[<n> SP V	End of line (default value)
✓	✻	✻	✻	✻	<ESC>[<n> t	Set form length in lines

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>[<n> u	Set horizontal tab
✓	✻	✻	✻	✻	<ESC>[<n> v	Set vertical tab
			✓	✓	<ESC>\<n1>;<n2>	Perform relative horizontal step
	✓	✓			<ESC>\<n1>;<n2>	Transparent mode for the characters following
	✓				<ESC>^	Transparent mode for the character following
	✓				<ESC>_<n>	Overline ON/OFF
	✓	✓	✓	✓	<ESC>0	Set line feed to 1/8 inch
	✓				<ESC>1	Set line feed to 7/72 inch
	✓	✓	✓	✓	<ESC>2	Set line feed to 1/6 inch
	✓				<ESC>2	Set line feed to n/72 inch
		✓	✓	✓	<ESC>3<n>	Set line feed to n/180 inch
	✓				<ESC>3>n>	Set line feed to n/216 inch
			✓	✓	<ESC>4	Italics ON
	✓	✓			<ESC>4	Set beginning of form
			✓	✓	<ESC>5	Italics OFF
	✓	✓			<ESC>5<n>	Autom. line feed ON/OFF
			✓	✓	<ESC>6	Print ASCII codes dec. 129 to dec. 159
	✓	✓			<ESC>6	PC character set 2 (expanded)
			✓	✓	<ESC>7	Suppress ASCII codes 129 to 159
	✓	✓			<ESC>7	PC character set 1 (standard)

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
			✓		<ESC>a<n>	Select orientation
		✓	✓	✓	<ESC>A<n>	Line spacing n/60 inch
	✓				<ESC>A<n>	Prepare line spacing n/72 inch
			✓		<ESC>b<m><0>	Clear all tabs
			✓		<ESC>b<m><n><0>	Set vertical tabs in channels
	✓	✓	✓	✓	<ESC>B<0>	Clear all vertical tabs
			✓	✓	<ESC>B<n1>...<n16><0>	Set vertical tabs
	✓	✓			<ESC>B<n1>...<n64><0>	Set vertical tabs
✓					<ESC>c	Reset to initialisation status
				✓	<ESC>c	Setting the horizontal motion index (HMI)
	✓	✓	✓	✓	<ESC>C<0><n>	Set form length in inches
	✓	✓	✓	✓	<ESC>C<n>	Set form length in lines
	✓	✓		✓	<ESC>d<n1>;<n2>	Perform relative horizontal step
	✓	✓	✓	✓	<ESC>D<0>	Clear all horizontal tabs
	✓	✓	✓	✓	<ESC>D<n1>...<n32><0>	Set horizontal tabs
	✓	✓			<ESC><DC2>	Condensed printing OFF
	✓	✓			<ESC><DC4>	Double-wide printing OFF (set with <SO> or <ESC><SO>)
	✓	✓	✓	✓	<ESC>E	Bold ON
			✓	✓	<ESC><EM>0	Deselect single sheet operation
			✓	✓	<ESC><EM>1	Bin 1 (front) (option)

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
			✓	✓	<ESC><EM>2	Bin 2 (rear) (option)
			✓	✓	<ESC><EM>4	Select single sheet operation
			✓	✓	<ESC><EM>R	Print page
	✓	✓	✓	✓	<ESC>F	Bold OFF
			✓	✓	<ESC>g	Set character pitch to 15 cpi
	✓	✓	✓	✓	<ESC>G	Set double stroke
	✓	✓	✓	✓	<ESC>H	Reset double stroke
✓					<ESC>H	Set horizontal tab at current printhead position
			✓	✓	<ESC>j<n>	Single line feed back n/180 inch
	✓	✓			<ESC>j	Set printer to Off Line
		✓	✓	✓	<ESC>J<n>	Single line feed n/180 inch
	✓				<ESC>J<n>	Single line feed n/216 inch
			✓	✓	<ESC>k<n>	Select font
	✓	✓	✓	✓	<ESC>K<n1>;<n2>	Set graphics print to 60 dpi
			✓	✓	<ESC>l<n>	Set left margin
	✓	✓			<ESC>l<n>	Select print mode
	✓	✓	✓	✓	<ESC>L<n1>;<n2>	Set graphics print to 120 dpi
			✓	✓	<ESC>M	Set character pitch to 12 cpi (Elite)
✓	✻	✻	✻	✻	<ESC>n	Character generator LS2
	✓		✓	✓	<ESC>N<n>	Set perforation skip

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✻	✻	✻	✻	<ESC>o	Character generator LS3
	✓	✓	✓	✓	<ESC>O	Reset perforation skip
			✓	✓	<ESC>p<n>	Proportional font ON/OFF
			✓	✓	<ESC>pn	Proportional font ON/OFF
			✓	✓	<ESC>P	Set character pitch to 10 cpi (Pica)
	✓	✓			<ESC>P<n>	Proportional font ON/OFF
	✓	✓			<ESC>Q<35>	Deselect printer
			✓	✓	<ESC>Q<n>	Set right margin
			✓	✓	<ESC>r<n>	Select colour
	✓	✓			<ESC>R	Reset all tabs
			✓	✓	<ESC>R0	Epson character set USA
			✓	✓	<ESC>R1	Epson character set France
			✓	✓	<ESC>R2	Epson character set Germany
			✓	✓	<ESC>R3	Epson character set United Kingdom
			✓	✓	<ESC>R4	Epson character set Denmark I
			✓	✓	<ESC>R5	Epson character set Sweden
			✓	✓	<ESC>R6	Epson character set Italy
			✓	✓	<ESC>R7	Epson character set Spain I
			✓	✓	<ESC>R8	Epson character set Japan
			✓	✓	<ESC>R9	Epson character set Norway

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
			✓	✓	<ESC>R10	Epson character set Denmark II
			✓	✓	<ESC>R11	Epson character set Spain II
			✓	✓	<ESC>R12	Epson character set Latin america
			✓	✓	<ESC>R13	Epson character set Korea
			✓	✓	<ESC>R64	Epson character set Legal
	✓	✓	✓	✓	<ESC>S<n>	Superscript or subscript ON
	✓	✓	✓	✓	<ESC><SI>	Condensed printing 17.1 cpi ON
			✓	✓	<ESC>Sn	Superscript or subscript ON
	✓	✓	✓	✓	<ESC><SO>	Double-wide printing ON
			✓	✓	<ESC><SP><n>	Set character spacing
			✓	✓	<ESC>t<n>	Select character set
	✓	✓	✓	✓	<ESC>T	Superscript or subscript OFF
	✓	✓	✓	✓	<ESC>U<n>	Unidirectional print ON/OFF
			✓	✓	<ESC>Un	Unidirectional print ON/OFF
	✓	✓	✓	✓	<ESC>W<n>	Continuous double width ON/OFF
			✓	✓	<ESC>Wn	Continuous double width ON/OFF
			✓	✓	<ESC>w<n>	Double height print ON/OFF
			✓	✓	<ESC>wn	Double height print ON/OFF
			✓	✓	<ESC>x<n>	Set print quality (PQ)
				✓	<ESC>X	Font selection according to pitch and points

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
	✓	✓			<ESC>X<n><m>	Set left and right margin
	✓	✓	✓	✓	<ESC>Y<n1>;<n2>	Set graphics print to 120 dpi
	✓	✓	✓	✓	<ESC>Z<n1>;<n2>	Set graphics print to 240 dpi
✓	✻	✻	✻	✻	<ESC>+*F*	Assign character set G3
✓	✻	✻	✻	✻	<ESC>|	Character generator LS3R
✓	✻	✻	✻	✻	<ESC>}	Character generator LS2R
✓	✻	✻	✻	✻	<ESC>~	Character generator LS1R
✓	✓	✓	✓	✓	<FF>	Form feed
✓	✓	✓	✓	✓	<HT>	Horizontal tab jump
✓					<HTS>	Set tab stop at actual horizontal position
✓					<IND>	Line feed without CR
✓	✓	✓	✓	✓	<LF>	Line feed
✓					<NEL>	Line feed with CR
✓					<PLD>	Half step line feed
✓					<PLU>	Half step line feed back
✓					<RI>	Line feed without CR back
	✓	✓	✓	✓	<SI>	Condensed printing of 17.1 cpi ON
✓					<SI>	Switching the character generator (SS 3)
	✓	✓	✓	✓	<SO>	Double-wide printing ON
✓					<SO>	Switching the character generator (SS 2)

MTPL	IBM XL24	IBM AGM	Epson LQ-2550	Epson LQ-2170	Code	Function
✓	✓	✓	✓	✓	<VT>	Vertical tab jump
✓					<VTS>	Set tab stop at current vertical position

Barcode

Even the standard version of your printer has the possibility of using up to 22 different barcodes.

Barcode mode can be accessed within every emulation. The user can decide whether barcode is activated permanently or activated depending on the situation by means of an escape sequence.

List of available barcodes

Type	Barcode	Type	Barcode
A	2/5 Matrix (default)	M	MSI /modified PLESSEY
B	2/5 Industrial	N	UPC A (with HRI)
C	2/5 Interleaved	O	UPC A (without HRI)
D	Code 11	P	UPC E (with HRI)
E	BCD Matrix	Q	UPC E (without HRI)
F	Code 39	R	Delta Distance (IBM)
G	Codabar	S	Code 128
H	EAN 8 (with HRI)	T	EAN 128
I	EAN 8 (without HRI)		US-Postnet
K	EAN 13 (with HRI)		KIX Barcode
L	EAN 13 (without HRI)		Royal Mail Customer Barcode

The barcode types K, L, N, O may be expanded by using Add-On Barcodes: Add-On 2 and Add-On 5.

The information to be printed is transmittted in a “bracket” (DC4).

A control sequence (Header) defines the parameters of the used bar-code once (e.g. type, ratio, etc.).

If no header is defined, the information in the “bracket” will be printed in Code 2/5 Matrix.

Please note that within the Barcode environment the barcode commands have priority in case of conflicts with the emulation.

Additional information is provided in the Barcode Programmer’s Application Manual on this CD-ROM.

US Postnet Barcode

Postnet is a special US-American type of barcode. It is printed in character size. Numeric values from 0 to 9 are printable.

After activating this barcode type, numeric characters from 0 (hex. 30) to 9 (hex. 39) are interpreted as barcode figures. All other characters terminate the Barcode mode. Exception: the TAB - function (hex. 09) is allowed within Barcode mode. The Postnet sequence is accessible in every emulation. The printer can print barcode in NLQ (180 dpi) and LQ (360 dpi). If draft print quality (DPQ) is selected the printout is performed in NLQ.

The character (e.g. CR = carriage return, hex. 0D), which terminates the barcode is not printed or carried out.
US Postnet Barcode does not require a barcode bracket.

Example: ASCII `ESC[1 SP p 12345 CR`

Hex. `1B 5B 31 20 70 31 32 33 34 35 0D`

The numbers 1 to 5 are printed as Postnet stripes.

LC printing

Certain professional applications may require unusually large character sizes. Therefore your printer has the possibility of scaling standard size characters up to factor 99 by means of control sequences.

The Header sequence defines the parameters (e.g. height) once. This definition remains until the printer is switched off.
The printable LCP* information is transmitted in an LCP “bracket” (SI).

Two character sets are available:

- US ASCII and
- German

The printout of LCP characters can be selected in all of the emulations. Prerequisite: Printer must be in Barcode mode.

Note that this printer supports some scalable fonts in the LQ-2170 emulation if you use a compatible driver.

* Large Character Printing

List of additional command codes

Sequences	Control codes	Function
<ESC>[?10~	—	Barcode Off
<ESC>[?11~	—	Barcode On
<ESC> PSC 0 <ESC> \	—	Unsecured mode
<ESC> PSC 1 <ESC> \	—	Secured mode
<ESC> PLS 01 <ESC> \	—	LCP character set US-ASCII
<ESC> PLS 02 <ESC> \	—	LCP character set german
<ESC>[<n><SP>s	—	Sends a character as ASCII character; n >> 0-255 decimal
<ESC>[20<SP>s	<DC4>	Barcode bracket
<ESC>[16<SP>s	<DLE>	Start code LCP Header
<ESC>[25<SP>s	<EM>	Termination code Header
<ESC>[15<SP>s	<SI>	LCP bracket
<ESC>[26<SP>s	<SUB>	Start code Barcode-Header
<ESC>[1 SP p	—	US-Postnet Barcode
<ESC>[1 SP k	—	Royal Mail Customer Barcode
<ESC>[2 SP k	—	Kix Barcode

You can use both the ESC sequences and the control codes.

Header	Function
<DLE> [!] nn EM	LCP header [ ] = optional nn = factor
<SUB> [F] a [nn][;xyz][;p] EM	Barcode header [ ] = optional a = Barcode type p = 0: Barcode horizontal p = 9: Barcode vertical

Additional information is provided in the Barcode Programmer's Application Manual on this CD-ROM.

Configuring the printer for your computer

Due to the great number of applications available on the market today, we cannot give you detailed help for every program. Therefore please refer to your software manuals for how to install your printer with your programs.

As a general rule, however, the printer and the application programs must be adjusted to each other. Your printer can be set so that it emulates subsequent printers.

- MTPL
- Epson LQ-2550*
- Epson LQ-2170
- IBM Proprinter XL 24e
- IBM Proprinter XL 24e + AGM

Many applications, however, also offer special printer drivers for our printers. If an original driver is provided, this provides the best prerequisites for optimum printer use. Ask your dealer about printer drivers or use our electronic information system to obtain the current printer driver (see last page of the manual for the *contact number*).

The printer supports Windows 3.1x, the Windows 95/98 and the Windows NT4 plug & play function.

You can download all printer drivers from our mailbox or from the *Internet* free of charge (you may incur phone call charges).

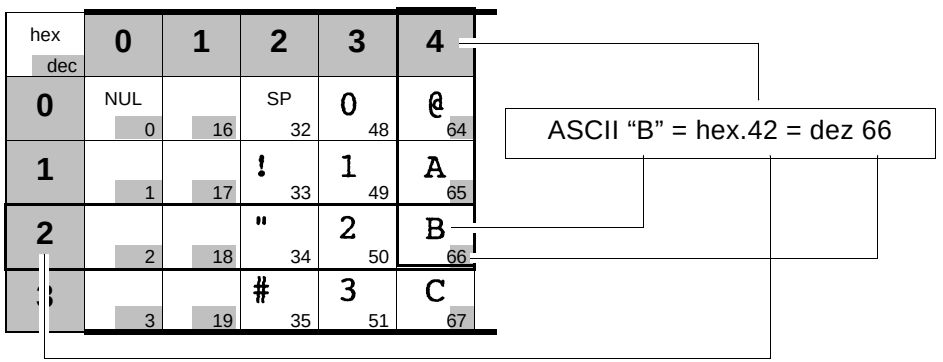
* If you select a font which is not available in this emulation, the printer substitutes it by an available internal font.

Character sets

This chapter shows the MTPL character sets and contains a list of all available character sets which can be selected via control panel or by escape sequences.

Note that MTPL sequences are available in all emulation modes.

The following example shows you how to find the hexadecimal value for a character from the symbol set tables.



MTPL character set

(charset = standard)

hex / dec	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	16	SP 32	0 48	@ 64	P 80	` 96	p 112	128	144	á 160	▒ 176	└ 192	╨ 208	α 224	≡ 240
1	1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113	129	145	í 161	▒ 177	┴ 193	╤ 209	β 225	± 241
2	STX 2	18	" 34	2 50	B 66	R 82	b 98	r 114	130	146	ó 162	▓ 178	┬ 194	╥ 210	Γ 226	≥ 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115	131	147	ú 163	│ 179	├ 195	╙ 211	π 227	≤ 243
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116	IND 132	148	ñ 164	┤ 180	─ 196	╘ 212	Σ 228	⌠ 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117	NEL 133	149	Ñ 165	╡ 181	┼ 197	╒ 213	σ 229	⌡ 245
6	ACK 6	22	& 38	6 54	F 70	V 86	f 102	v 118	134	150	ª 166	╢ 182	╞ 298	╓ 214	μ 230	÷ 246
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119	135	151	º 167	╖ 183	╟ 199	╫ 215	τ 231	≈ 247
8	BS 8	24	(40	8 56	H 72	X 88	h 104	x 120	HTS 136	152	¿ 168	╕ 184	╚ 200	╪ 216	Φ 232	° 248
9	HT 9	25	) 41	9 57	I 73	Y 89	i 105	y 121	137	153	⌐ 169	╣ 185	╔ 201	┘ 217	Θ 233	• 249
A	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122	VTS 138	154	¬ 170	║ 186	╩ 202	┌ 218	Ω 234	· 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123	PLD 139	CSI 155	½ 171	╗ 187	╦ 203	▉ 219	δ 235	√ 251
C	FF 12	28	, 44	< 60	L 76	\ 92	l 108	| 124	PLU 140	156	¼ 172	╝ 188	╠ 204	■ 220	∞ 236	η 252
D	CR 13	29	- 45	= 61	M 77	] 93	m 109	} 125	RI 141	157	¡ 173	╜ 189	═ 205	▌ 221	φ 237	² 253
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126	SS2 142	158	« 174	╛ 190	╬ 206	▐ 222	ϵ 238	▪ 254
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	DEL 127	SS3 143	159	» 175	┐ 191	╧ 207	▀ 223	∩ 239	DEL 255

MTPL international substitution characters

	dec	35	36	64	91	92	93	94	96	123	124	125	126
	hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US ASCII		#	$	@	[	\	]	^	`	{	|	}	~
UK ASCII		£	$	@	[	\	]	^	`	{	|	}	¯
Swedish		#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
German		#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
Portuguese		#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	º
French		£	$	à	º	ç	§	^	`	é	ù	è	¨
Italian		£	$	§	º	ç	é	^	ù	à	ò	è	ì
Spanish		£	$	§	¡	Ñ	¿	^	`	º	ñ	ç	~
Norwegian		#	$	@	Æ	Ø	Å	^	`	æ	ø	å	¯

OCR-A character set

hex / dec	0	1	2	3	4	5	6	7
0	NUL 0	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113
2	STX 2	18	" 34	2 50	B 66	R 82	b 98	r 114
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117
6	ACK 6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	BS 8	24	(40	8 56	H 72	X 88	h 104	x 120
9	HT 9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122
B	VT 11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	FF 12	28	, 44	< 60	L 76	\ 92	l 108	¦ 124
D	CR 13	29	- 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	127

OCR-B character set

hex / dec	0	1	2	3	4	5	6	7
0	NUL 0	16	SP 32	0 48	@ 64	P 80	` 96	p 112
1	1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113
2	STX 2	18	" 34	2 50	B 66	R 82	b 98	r 114
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115
4	4	20	$ 36	4 52	D 68	T 84	d 100	t 116
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117
6	ACK 6	22	& 38	6 54	F 70	V 86	f 102	v 118
7	BEL 7	23	' 39	7 55	G 71	W 87	g 103	w 119
8	BS 8	24	(40	8 56	H 72	X 88	h 104	x 120
9	HT 9	25	) 41	9 57	I 73	Y 89	i 105	y 121
A	LF 10	26	* 42	: 58	J 74	Z 90	j 106	z 122
B	VT 11	ESC 27	+ 43	; 59	K 75	[91	k 107	{ 123
C	FF 12	28	, 44	< 60	L 76	\ 92	l 108	| 124
D	CR 13	29	- 45	= 61	M 77	] 93	m 109	} 125
E	SO 14	30	. 46	> 62	N 78	^ 94	n 110	~ 126
F	SI 15	31	/ 47	? 63	O 79	_ 95	o 111	▮ 127

Available character sets

The following list shows all available character sets which can be selected via control panel or by escape sequences

ISO and MTPL	Epson	IBM
ISO 8859-1	E-US ASCII	Table 437 (USA)
ISO 8859-1 SAP	E-France	Table 850 (European Latin 1)
ISO 8859-2	E-German	Table 852 (Latin 2)
ISO 8859-5	E-UK	Table 857 (Turkish)
ISO 8859-9	E-Denmark I	Table 860 (Portuguese)
ISO 8859-15	E-Sweden	Table 861 (Icelandic)
BRASCII	E-Italy	Table 863 (French Canadian)
Abicomp	E-Spain I	Table 865 (Nordic)
Roman 8	E-Japan	Table 866 (Cyrillic)
US ASCII	E-Norway	Table 1250 (Win Latin 2)
UK ASCII	E-Denmark II	Table 1251 (Win Cyrillic)
French	E-Spain II	Table 1252 (Win Latin 1)
German	E-L. America	Table 1254 (Win Turkish)
Italian	E-Korea	
Swedish	E-Legal	
Norwegian		
Spanish		
Portuguese		
Cro-ASCII		

Interfaces

Your matrix printer offers the possibility of operating either via a parallel or via a optional serial interface. This appendix informs you about the parallel Centronics compatible interface and the serial interface type RS232C/V.24 and describes the communication between your computer and the printer.

These interfaces are linked to form a so-called shared interface. Your printer can be configured to use only one interface or both alternately. When only one interface is used, it is monitored by the printer. If the printer is configured to use both interfaces simultaneously it monitors both interfaces for incoming data. As soon as the printer recognizes a signal it switches to the respective interface and sends the BUSY signal to the other interface. After finishing the data transmission, the printer remains switched to the interface for a certain period of time (30 seconds). When this time has elapsed, the controller reenables both interfaces and the sequence described restarts. If incoming data is on the other interface and the current print position is not “Top of Form”, a form feed is carried out.

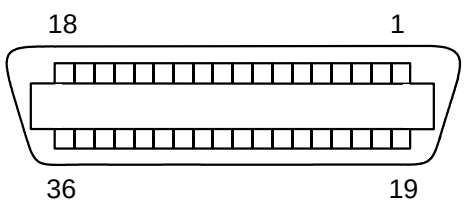
Parallel interface

The bidirectional parallel interface offers the so called “nibble” mode of the IEEE1284 interface norm. This enables installation in accordance with Win 95 “Plug & Play”.

The standard parallel interface is able to transfer data at a speed of max. 30,000 bytes per second. When the receiving buffer is full, the data input is blocked until the data buffer is empty. This guarantees data transmission in blocks of 1 KB.

Connector no.	Direction Printer– PC	Signal
1	←	$\overline{\text{STROBE}}$ (active low)
2	←	DATA 1
3	←	DATA 2
4	←	DATA 3
5	←	DATA 4
6	←	DATA 5
7	←	DATA 6
8	←	DATA 7
9	←	DATA 8
10	→	$\overline{\text{ACK}}$ (active low)
11	↔	BUSY

Connector no.	Direction Printer– PC	Signal
12	↔	PAPER EMPTY (PE)
13	↔	SELECT
14	↔	$\overline{\text{AUTO FEED}}$ (active low)
15		Not used
16	—	SIGNAL GROUND
17	—	CHASSIS GROUND
18	—	+5 V (I_{max} = 500 mA)
19 – 30	—	SIGNAL GROUND
31	←	$\overline{\text{INIT}}$ (active low)
32	↔	$\overline{\text{ERROR}}$ (active low)
33	—	SIGNAL GROUND
34 – 35		Not used
36	←	SELECT IN



Transmission length: max. 2,0 m

Serial interface V.24/RS232C

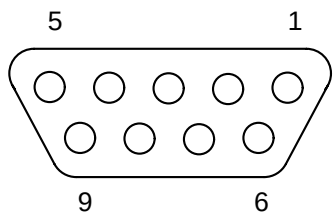
Type	RS232C interface
Synchronization	Asynchronous
Transmission rate	600 Baud to 19.200 Baud
Signal status	Low: 0.0 V to +0.4 V High: +2.4 V to +5.0 V
Connection cable	up to 15 m length
Interface connections	ITT Cannon connector , series DB-9 S
Transmission protocol	XON/XOFF, ENQ/STX, READY/BUSY, Robust XON/XOFF, ACK/NAK, ETX/ACK
Capacity of data buffer	64 KB max.

Your printer's serial interface supports the RS232C specification. The signals are received and transmitted by a 9 pin connector.

Basically 3 lines are already enough for exchanging information between computer and printer (one receive line, one send line, one line for common grounding).

Connector assignment

Connector no.	Direction	Signal
3	→	TxD
4	→	DTR
2	←	RxD
6	←	DSR
7	→	RTS
8	←	CTS
5	—	Signal Ground SG
Shield	—	Frame Ground FG



Transmission length: max. 15 m

Interface cable (serial interface)

The cables used must be shielded. The cable shield must be connected to the connector shield on both ends.

PC/AT (9-pin)		Printer (9-pin)	
RxD	2	3	TxD
TxD	3	2	RxD
CTS	8	4	DTR/RDY
SG	5	5	SG
DSR	6		
DTR	4		

PC/AT (25-pin)		Printer (9-pin)	
FG	1		FG
TxD	2	2	RxD
RxD	3	3	TxD
CTS	5	4	DTR/RDY
SG	7	5	SG
DSR	6		
DTR	20		

It depends on the menu setting whether DTR or RDY is active at pin 4.

Input signals

Signal	Function
CTS	Clear to Send
DSR	Data Set Ready
RxD	Receive Data

Output signals

Signal	Function
DTR	Data Terminal Ready
RTS	Request to Send
READY	Ready to receive data
TxD	Transmit Data

Memory mode XON/XOFF

The received characters are stored in a FIFO buffer (first in/first out).

The characters are processed in this buffer. The buffer capacity can be adjusted from 0 to 128 Kb.

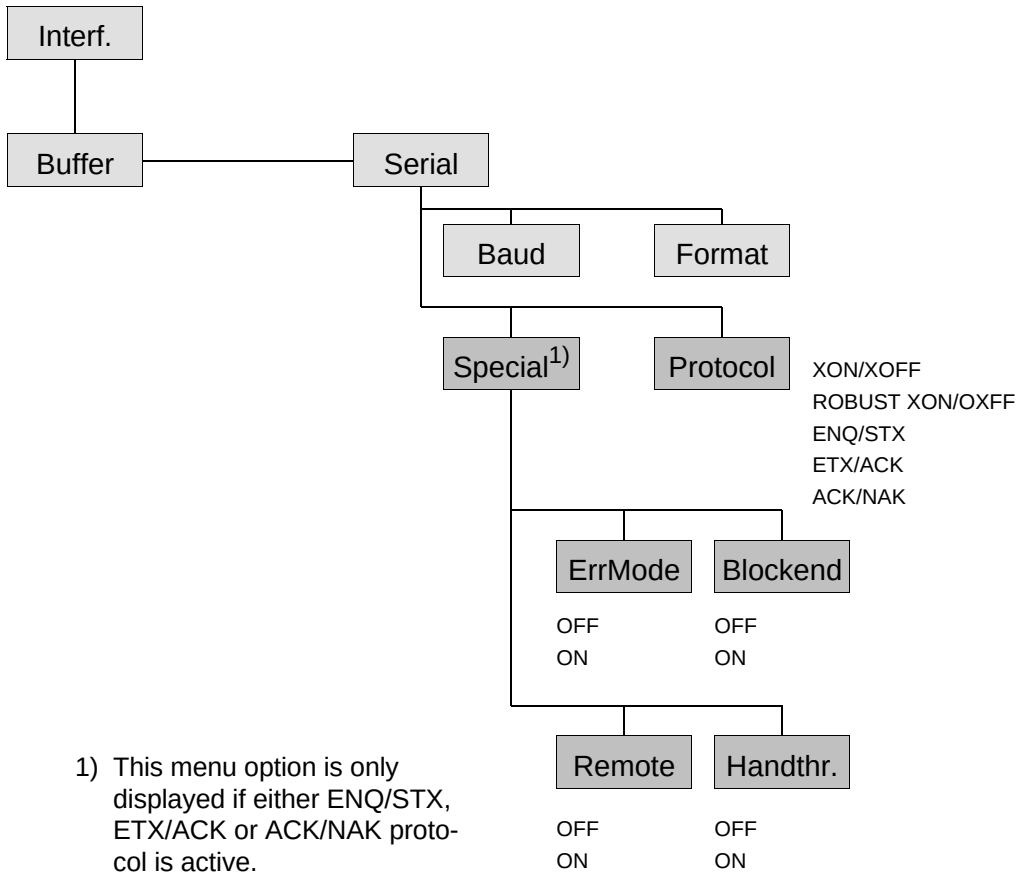
If the buffer is full, the interface signals NOT READY (signal acknowledgement: Level 1, -12 V) and XOFF (hex. 13, dec. 19). This results in stopping the data transmission. When the FIFO buffer is empty again, the interface signals READY (level 0, +12 V) and XON (hex. 11, dec. 17). Data transmission can be continued.

In addition, the READY signal is influenced by the status of the printer (On/Off Line). If the printer assumes an undefined state, the interface also signals NOT READY and XOFF.

Memory mode Robust XON/XOFF

Robust XON/XOFF is similar to XON/XOFF. However, the state of the printer (XON or XOFF) is also periodically transmitted via the TxD line in the case of Robust XON/XOFF.

Extended menu functions with the ENQ/STX, ETX/ACK and ACK/NAK protocols selected



1) This menu option is only displayed if either ENQ/STX, ETX/ACK or ACK/NAK protocol is active.

ENQ/STX protocol

In addition to this XON/XOFF message, the possibility exists of requesting a status byte from the printer using the ENQ code (hex. 05, dec. 5).

The STX code (hex 02, dec. 2) is used to clear any error messages (parity error, buffer overflow).

Status byte	Bit 0 – 1 Bit 1 – 1 Bit 2 – 0 Bit 3 – 1 Bit 4 – 1 Bit 5 – 1 Bit 6 – 1 Bit 7 – 0	BUSY Off Line Paper end Always 1 Cover open Buffer overflow Parity or frame error Always 0

STX (hex02) Clears any previous parity or framing error as well as any buffer overflow error.

ENQ (hex05) The current printer status is sent to the host.

XON/XOFF This protocol is automatically used for data flow control and printer status handling.

HandThr.=ON The STX and ENQ characters are not filtered out of the data stream and control the interface in addition.

HandThr.=OFF The STX and ENQ are filtered out of the data stream and handled immediately by the interface.

ETX/ACK protocol

ETX (hex03)	Block end character
ACK (hex06)	Acknowledgement informing the host that further data may be transmitted.
XON/XOFF	This protocol is used in addition to data flow control and printer status handling.
HandThr.=ON	An ETX is not acknowledged by ACK before all previously arrived data have been printed.
HandThr.=OFF	When the printer receives an ETX, it returns an ACK to the host. Any previously sent data or blocks may still be present in the printer buffer.

ACK/NAK protocol

STX (hex02)	Clears any previous error status.
ETX (hex03)	Block end character
ENQ (hex05)	Printer status enquiry (see ENQ/STX).
ACK (hex06)	Acknowledgement character; block was transmitted successfully.
NAK (hex15)	Block transmission error.
DEL (hex7F)	Deletes the whole block; acknowledged by ACK or NAK.
HandThr.=ON	Does not filter out the STX, ENQ, ETX, DEL characters from the data stream (transparence). However, they are also used for block control.

HandThr.=OFF The STX, ENQ, ETX, DEL characters are filtered out from the data stream at the interface and used for control.

XON/XOFF control is not available with the ACK/NAK protocol.

Add entry to the AUTOEXEC.BAT

To use the serial interface of your PC, you must add the following mode commands to the AUTOEXEC.BAT file:

```
mode com1:9600,n,8,1,p
mode lpt1:= com1:
```

This mode command is only necessary when data is not to be transmitted directly to COM1 or another serial interface. It only applies to the default setting of the serial interface of your printer.

Transmission rate:	9600 bauds
Parity:	None
Data bits:	8
Stop bits:	1

These settings must be modified to use other values.

Specification

➤ Printer specifications

Printer system	Serial impact matrix printer Printhead with 24 needles ∅ 0.25 mm bidirectional printing
Print speed and character matrices	
DPQ = Draft (Data Print Quality)	400 cps / 10.0 cpi 12 x 12 480 cps / 12.0 cpi 12 x 10 600 cps / 15.0 cpi 08 x 08* 600 cps / 15.0 cpi 12 x 08 510 cps / 17.1 cpi 12 x 12 600 cps / 20.0 cpi 12 x 10
CPQ = Copy Draft (Copy Print Quality)	180 cps / 10,0 cpi 24 x 12 220 cps / 12,0 cpi 24 x 10 270 cps / 15,0 cpi 16 x 08* 270 cps / 15,0 cpi 24 x 08 230 cps / 17,1 cpi 24 x 12 270 cps / 20,0 cpi 24 x 10

NLQ (Near Letter Quality)	180 cps / 10,0 cpi 24 x 18 220 cps / 12,0 cpi 24 x 15 270 cps / 15,0 cpi 16 x 12* 270 cps / 15,0 cpi 24 x 12 150 cps / 17,1 cpi 24 x 18 180 cps / 20,0 cpi 24 x 15
LQ (Letter Quality)	90 cps / 10,0 cpi 24 x 36 100 cps / 12,0 cpi 24 x 30 135 cps / 15,0 cpi 16 x 16* 135 cps / 15,0 cpi 24 x 16 150 cps / 17,1 cpi 24 x 18 180 cps / 20,0 cpi 24 x 15
	* Epson emulation only (15 cpi, superscript, subscript) and MTPL microscipt
Tab speed	40 inch/sec.
Print width	*Narrow printer :* 80 characters at 10 cpi *Wide printer :* 136 characters at 10 cpi
Character pitch	5 / 6 / 7.5 / 8.6 / 10 / 12 / 15 / 17.1 / 20 cpi
Character size	
Height	3.32 mm (incl. descenders)
Width	2.19 mm, max. 2.43 mm

Fonts	
Standard	Print qualities: Data Print Quality, Copy Draft Quality, Near Letter Quality, Letter Quality Fonts: Courier, Roman, Sans Serif, OCR-A, OCR-B (all resident in NLQ und LQ); Roman scalable, Sans Serif scalable (only in LQ-2170 emulation); DLL is standard
Barcodes (standard)	22 + Large Character Printing (LCP) (see *Barcode*)
Emulations	
Standard	– MTPL (Tally Printer Language) – Epson LQ-2550/LQ-2170 – IBM Proprinter XL24e / IBM XL24 + AGM
Optional	on request
Resolution	60 to 360 dpi horizontal 90 to 360 dpi vertical
Print attributes in all character pitches	Double width, italics, right justification, shadowed, auto centered, double height, bold, proportionally spaced, underlined, overlined, superscript, subscript; scalable with special LQ-2170 fonts

Self-test	ASCII test Hex-dump Fault display Ribbon test
Printer buffer	64 KB max.
Panel	LCD display, 2 x 16 digits 6 function keys: – Online – Setup – 4 softkeys
Noise Sound pressure level Sound power level	 L_{PA} = 53 dB(A) with Sans Serif (ISO 7779[1988]) L_{AWd} = 7,2 B(A)
Continuous operation **Throughput (ECMA 132)** **MTBF**	 >14 000 pages/month DPQ >400 pages/hour >10 000 h; 25% DC
Mains voltage	120 V ±10% or 220–240 V -10%, +15%, 50/60 Hz, depending on the printer version
Power consumption	<40 VA
Approvals	cULus certification, CE certification, FCC Class B certification, VDE-GS certification

Dimensions	*Narrow printer*	*Wide printer*
Width	424 mm	600 mm
Height	300 mm	300 mm
Depth	399 mm	399 mm
Weight	*Narrow printer*	*Wide printer*
	10.5 kg	13.2 kg
Paper feed		
Feed speed	4"/sec	
Feed first line (6 lpi)	60 ms	
View position	4"/sec	
Reverse motion	Up to max. form length (22 inch) max. 1 inch for automatic single sheet feeder	
Printhead gap		
Standard	Automatic gap adjustment	
Paper transport		
Standard	– Tractor with parking position – Manual single sheet feeder, front insertion (friction rollers)	
Optional	– Automatic single sheet feeder front and rear – Tractor 2 (front) and 3 (rear)	

Service life	
Printhead	250 million /DPQ 12 x 12 Matrix
Ribbon	*Narrow printer :* 3.5 million characters *Wide printer :* 5.0 million characters
Environmental conditions	
Operation	
Temperature	+10° to +35°C
Rel. humidity	16 to 73%
Climate	IEC 721-3-7, Class 7K1
Storage	
Temperature	-5° to +45°C
Rel. humidity	5 to 95%
Climate	IEC 721-3-1, Class 1K3
Transport	
Temperature	-40° to +70°C
Rel. humidity	5 to 95%
Climate	IEC 721-3-2, Class 2K4

Interface specifications

Parallel interface	bidirectional
Type of data transmission	8-bit parallel interface (Centronics compatible) IEEE-1284; Nibble mode
Transmission rate	Max. 30 KHz
Signal status	Low: 0.0 V to +0.4 V High: +2.4 V to +5.0 V
Connection cable	Material AWG no. 28 at least Length up to 2.5 m Twisted-pair cable with double-shield, acc. IEEE Std 1284 – 1294
Interface connections	Printer side: Amphenol 57-40360 (or compatible) Cable side: Amphenol 57-30360 (or compatible)

Serial interface	
Type	RS232C interface
Synchronization	Asynchronous
Transmission rate	600 bauds to 19,200 bauds
Signal status	OFF = Mark = log. 1 = -3 V to -15 V ON = Space = log. 0 = +3 V to +15 V
Connection cable	Length up to 15 m
Interface connections	ITT Cannon connector, series DB-25 S
Transmission protocol	XON/XOFF, ENQ/STX, READY/BUSY, Robust XON/XOFF, ACK/NAK, ETX/ACK
Capacity of data buffer	64 KB max.

Paper specifications

Maximum printing width for all paper paths	*narrow printer:* 203,20 mm *wide printer:* 345,44 mm
Continuous paper tractor 1, single-layer	
Weight	60 to 120 g/m^2
Paper width	76 to 278 mm *(narrow printer)* 76 to 420 mm *(wide printer)*
Form length	76 to 559 mm
Continuous paper tractor 1, multi-layer (to be tested individually!)	
Copies	1 + 5
Weight of original	45 to 65 g/m^2
Weight of copies	45 to 56 g/m^2
Weight of last sheet	45 to 65 g/m^2
Thickness (max.)	0.6 mm
Paper width	76 to 278 mm *(narrow printer)* 76 to 420 mm *(wide printer)*
Form length	76 to 559 mm

Single sheet, manual single sheet feeder, single-layer	
Weight	80 to 120 g/m^2
Paper width	76 to 2784 mm *(narrow printer)* 76 to 420 mm *(wide printer)*
Form length	76 to 305 mm
Single sheet, manual single sheet feeder, multi-layer (to be tested individually!)	
Copies	1 + 5
Weight of original	50 to 60 g/m^2
Weight of copies	45 to 56 g/m^2
Weight of last sheet	50 to 60 g/m^2
Thickness (max.)	0.6 mm
Paper width	76 to 278 mm *(narrow printer)* 76 to 420 mm *(wide printer)*
Form length	76 to 305 mm
Envelopes	
Width	76 to 420 mm
Length	76 to 305 mm
Thickness	0.32 mm

Printing paper	Recycling paper made of 100% waste paper (to DIN 19 309) can be processed
Set of forms	Sets of forms may be used only if the top edge is bound. The binding edge should be as soft as possible. A wavy binding edge may hamper the smooth feeding of these sets. Multi-part forms have to be inserted with the glued top facing down. Multi-part forms should be tested for suitability.
Paper quality	Light pulp paper of medium fine quality, paper bearing the quality mark SM Post and photocopy paper are suitable for use. Unsuitable are: satin-finisch or coated papers, imitation art papers, and embossed papers. Since paper as natural material reacts strongly to environmental influences (e.g. humidity, temperature), the place of storage should be selected carefully. We recommend that this kind of paper should be tested extensively before larger quantities are acquired. Should papers with a dark reverse side be used, these should also be tested for their functionality. Please pay attention to the use of infrared reflecting colors, when acquiring these papers.

Options and Accessories

Options

The following options can be ordered for your printer:

Automatic single sheet feeder, front (ASF-F)

The automatic single sheet feeder is suitable for single sheets and sets of forms with 1 + 3 forms. Paper formats with a width of 100 to 223 mm (narrow printer) or 365 mm (wide printer) may be used. Each format in between can be set.
Part no.: 060 421 (narrow printer)
Part no.: 060 422 (wide printer)

Automatic single sheet feeder, rear (ASF-R)

The automatic single sheet feeder is suitable for single sheets and sets of forms with 1 + 2 forms. Paper formats with a width of 100 to 223 mm (narrow printer) or 365 mm (wide printer) may be used. Each format in between can be set.
Part no.: 060 423 (narrow printer)
Part no.: 060 424 (wide printer)

Tractor 2, front

The push tractor is suitable for fanfold paper and sets of forms with 1 + 5 forms. Paper formats with a width of 76 to 264 mm (narrow printer) or 406 mm (wide printer) may be used. Each format in between can be set.
Part no.: 060 419 (narrow printer)
Part no.: 060 420 (wide printer)

Tractor 3, rear

The push tractor is suitable for fanfold paper and sets of forms with 1 + 1 forms. Paper formats with a width of 76 to 264 mm (narrow printer) or 406 mm (wide printer) may be used. Each format in between can be set.
Part no.: 060 419 (narrow printer)
Part no.: 060 420 (wide printer)

Others

On request

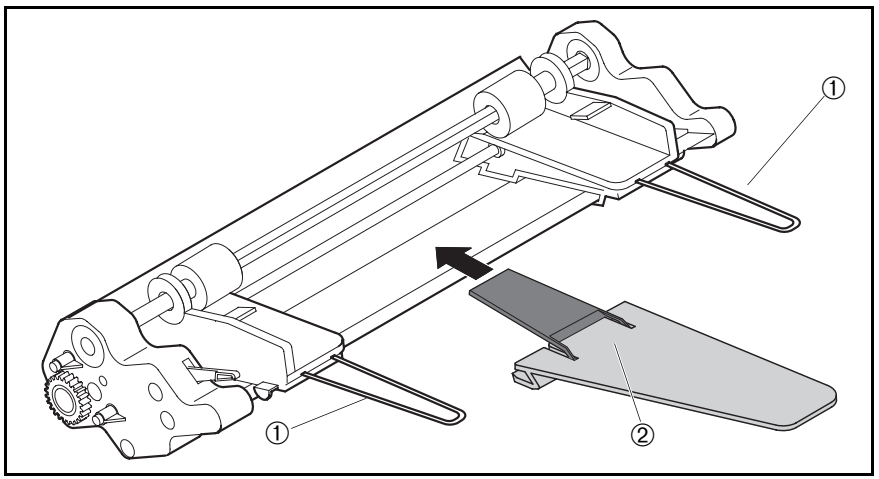
Automatic single sheet feeder, front (ASF-F)

Preparing the printer

Switch the printer on. Enter setup mode, select the **PapOpt** menu option and activate the **ASF-F** parameter. Subsequently select the ASF-F either in setup mode (see chapter *The menu*) or via the paper source quick selection function (see chapter *Settings [I]*, *Paper path quick selection*) or via an application program.

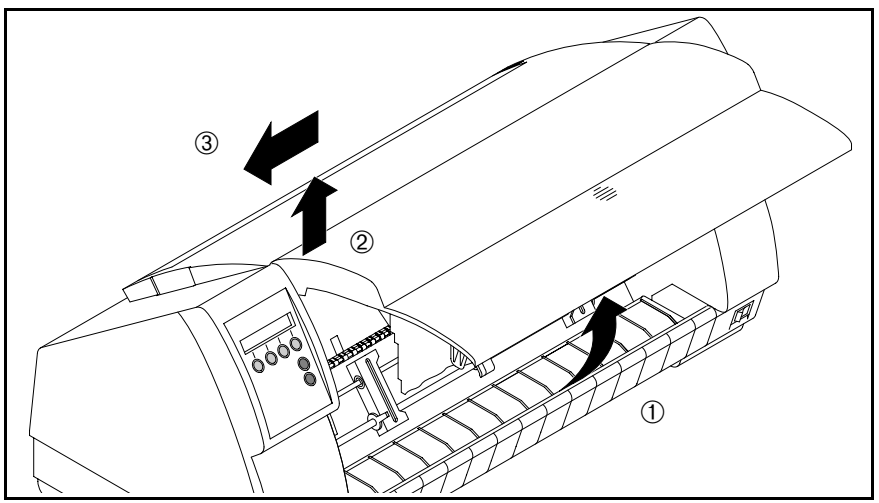
Activating ASF-F in the PapOpt **menu will deactivate both paper paths** Single **and** Trac2 **at the same time and it will no longer be possible to select them with the paper path quick selection function. If the ASF-F is deinstalled in the** PapOpt **menu, the printer will reactivate the** Single **paper path automatically, leaving** Trac2 **deactivated.**

Installing the ASF-F



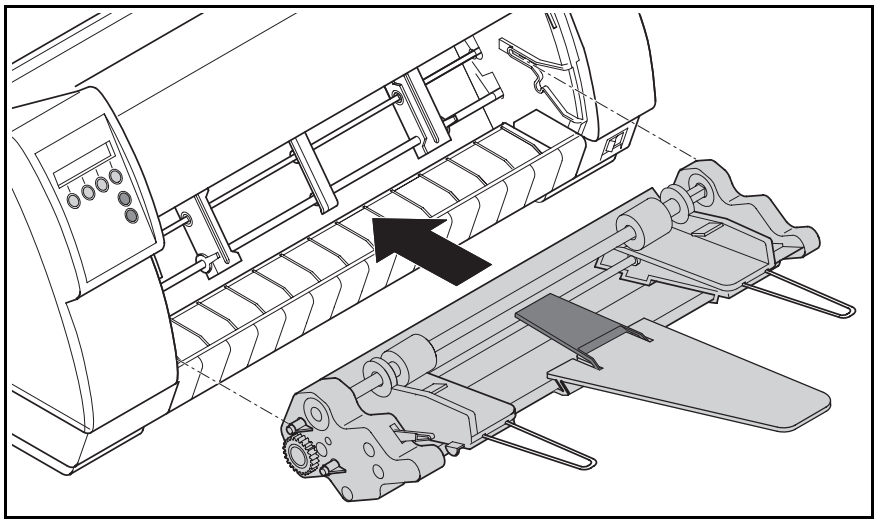
Insert the two paper support brackets ① into the openings provided in the paper guides.

Mount the paper support(s) to the holder (the narrow printer is provided with one, the wide printer with two paper supports).

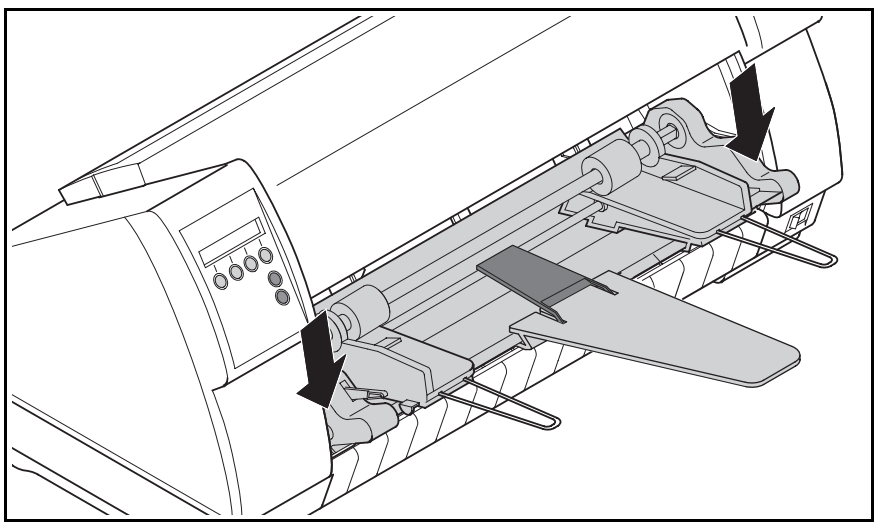


Remove the front cover, raising it as shown in the figure ①, then lift it out of the recess ② on the left (viewed from the front of the printer), pulling it towards the left ③ to remove it.

Insert the front cover supplied with the ASF-F in reverse sequence of steps.

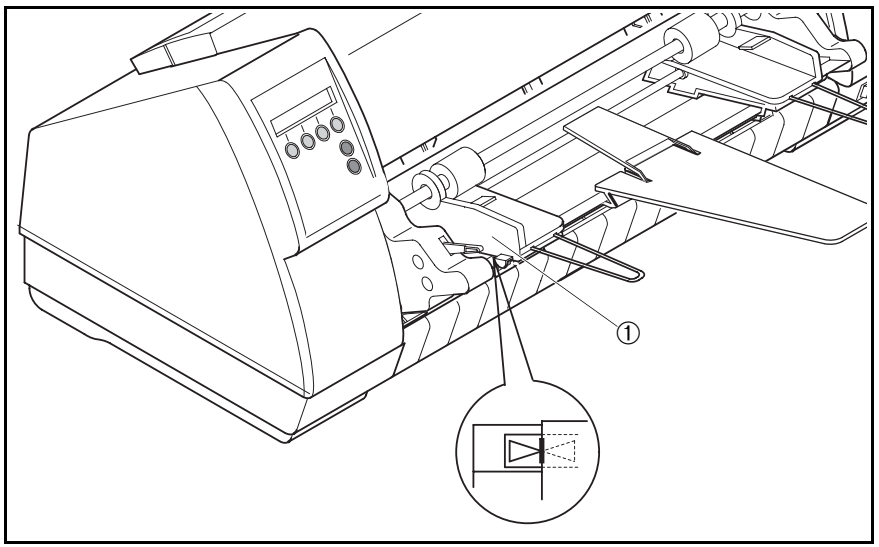


Insert the single sheet feeder with the pins on the left and right in parallel to the stop into the guides provided on the printer.



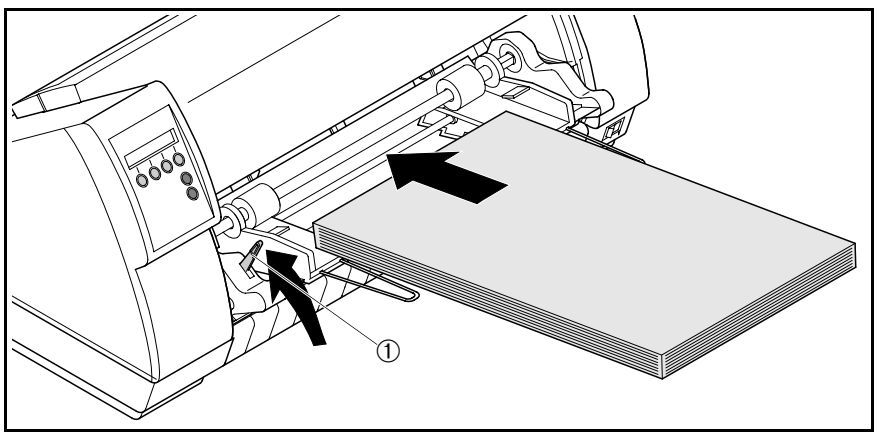
Press the single sheet feeder down on the left and right until the front pins click into place on the left and right.

Inserting paper



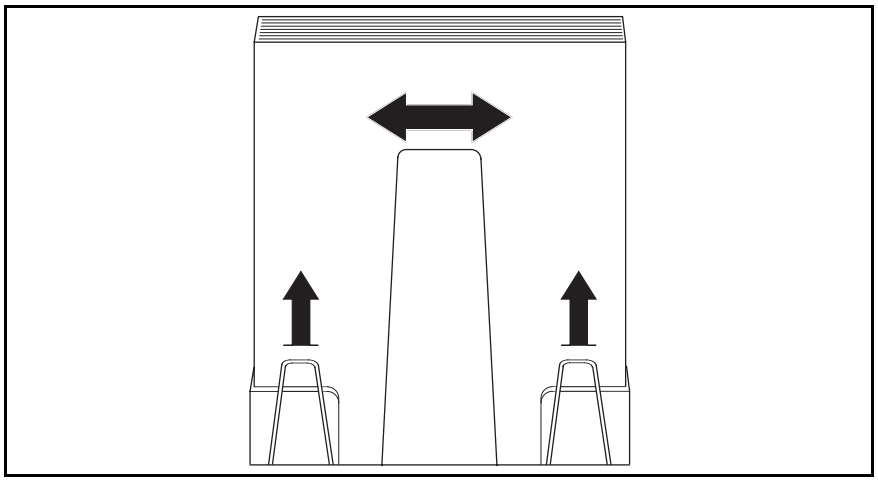
For more rigid paper, we recommend to remove the tear rail for fanfold paper in order to increase the stacking capacity.

Align the left-hand paper guide ① with the mark for the left-hand printing position to ensure that the first character is printed on the paper.

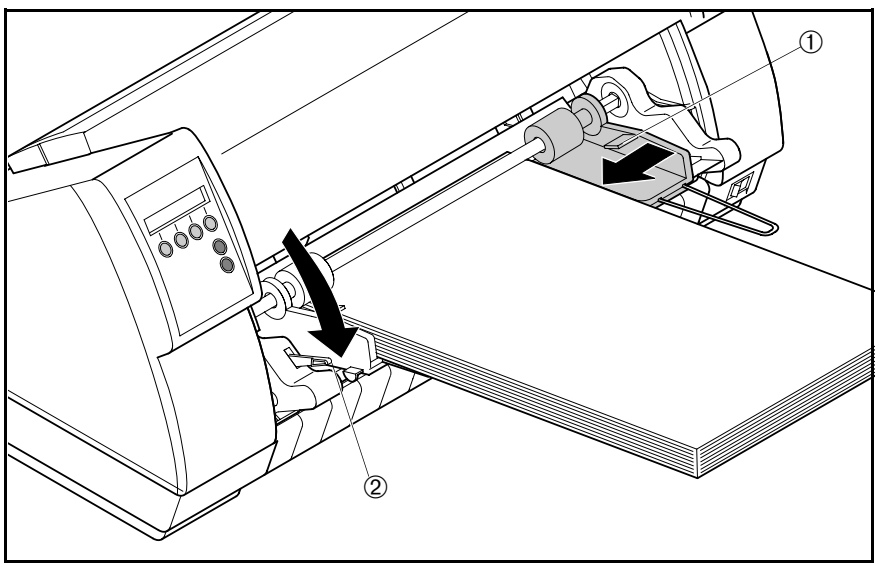


Fan the paper and then align the edges before loading it into the paper tray.

Raise the fixing lever ① on the left side of the ASF-F and insert the paper stack.



Align the paper support(s) with the centre of the paper stack. Adjust the left and right extensions to the paper length.



Adjust the right-hand paper guide ① to the width of the paper used.

Close the fixing lever ②.

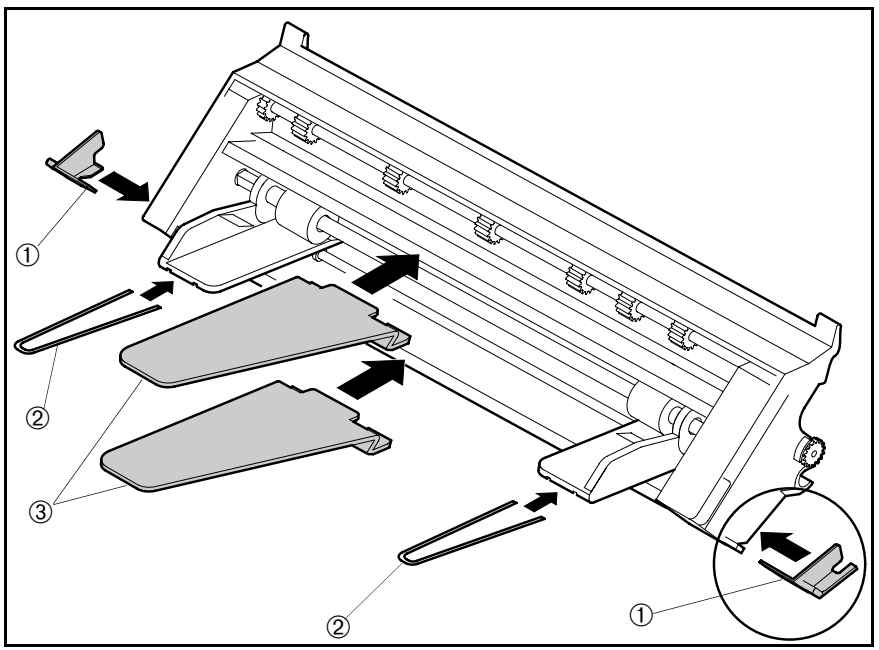
Press the **Online** key to set the printer to ready status. When the printer receives data from the computer, the first sheet is automatically loaded. Press the **Load** key to load a sheet before starting the printout.

Automatic single sheet feeder, rear (ASF-R)

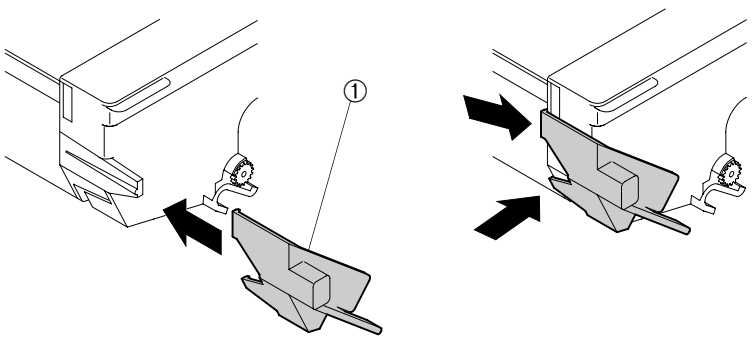
Preparing the printer

Select the ASF-R either in setup mode (see chapter *The menu*) or via the paper source quick selection function (see chapter *Settings [I]*, *Paper path quick selection*) or via an application program.

Installing the ASF-R

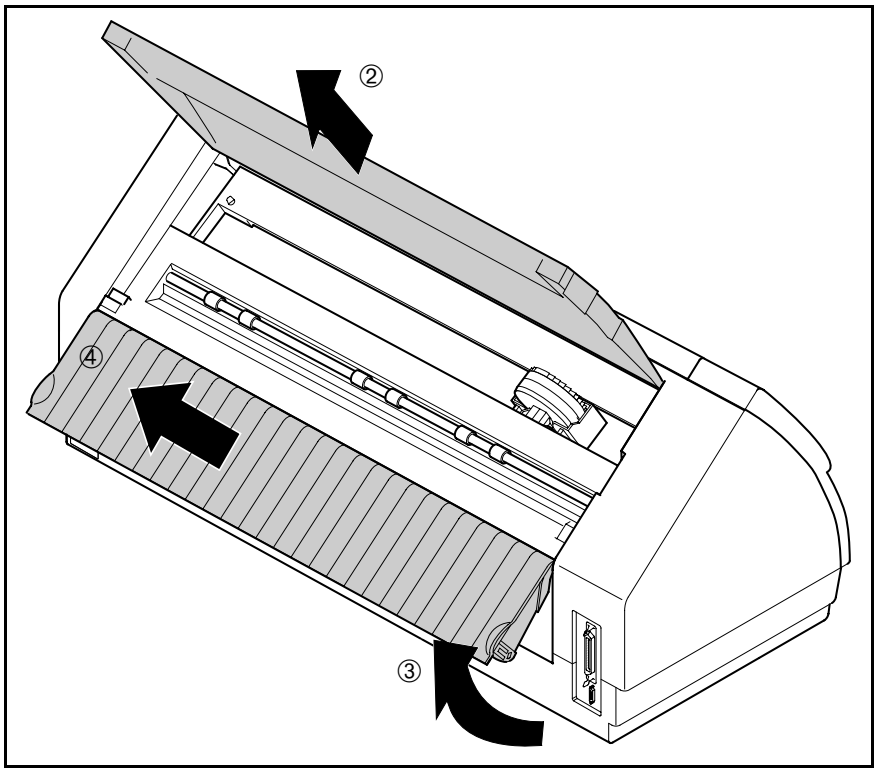


Mount the two adapters ① on the left and right on the projections provided on the single sheet feeder and click them into place.



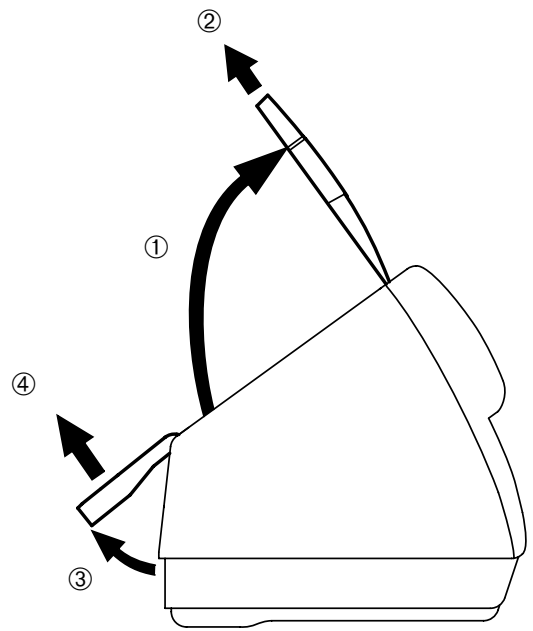
Insert the two paper support brackets ② into the openings provided in the paper guides.

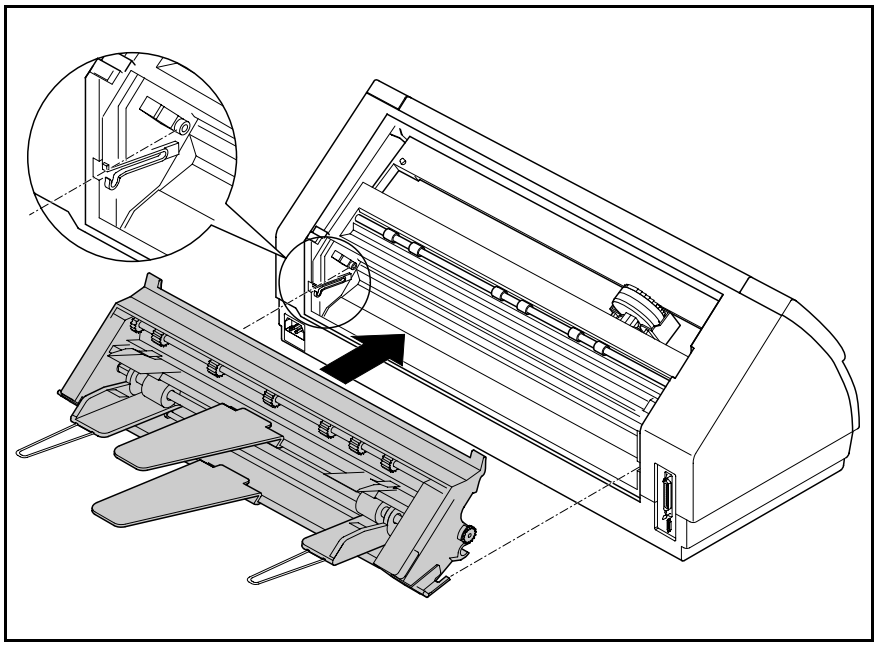
Mount the two paper support plates ③ to the holders.



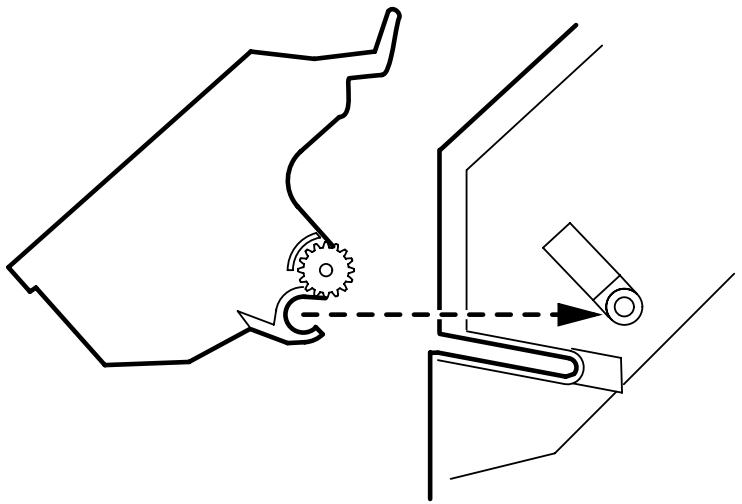
Press the two slide latches, raise the top cover ① to an angle of 90 degrees relative to the printer top side and remove it ②.

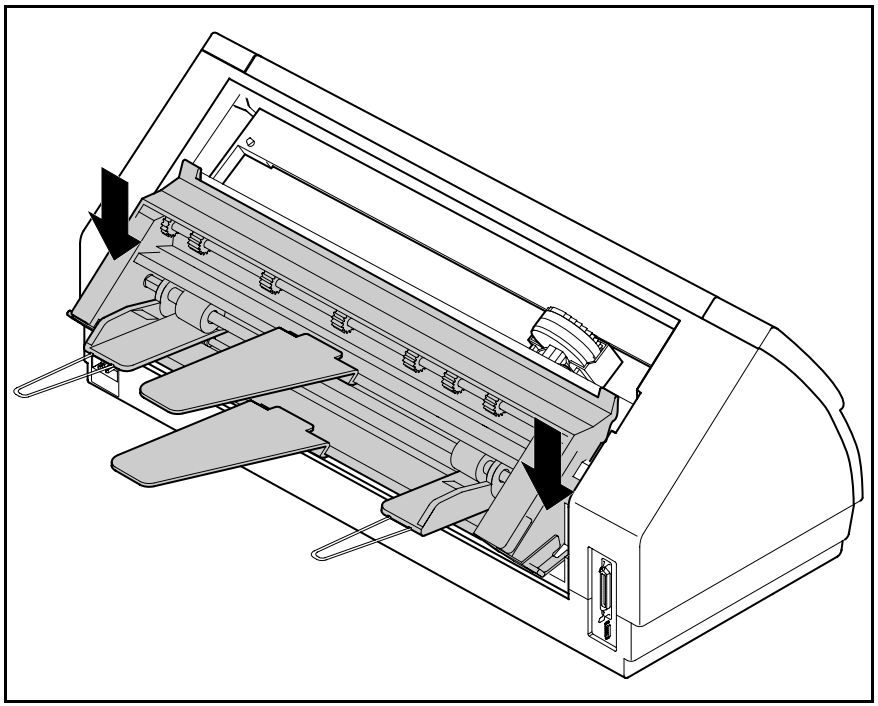
Raise the rear printer cover ③ until it is aligned with the printer top side and remove it upwards at an angle ④.





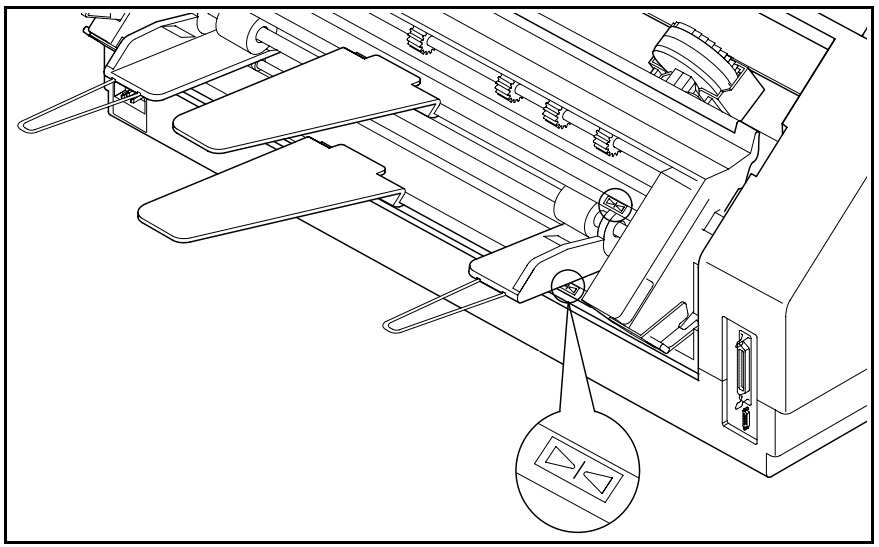
Insert the single sheet feeder *exactly in parallel* with the printer in such a way that the recesses on the left and right of the single sheet feeder match the projections provided in the printer.



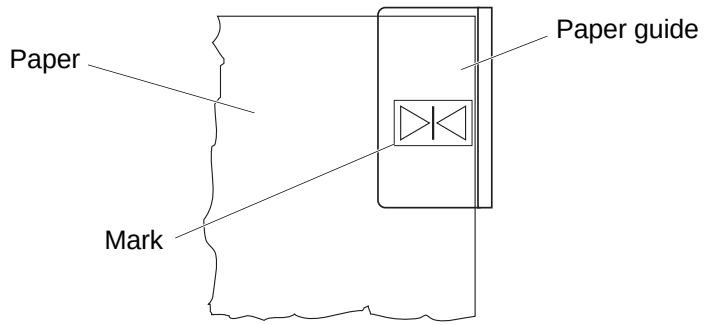


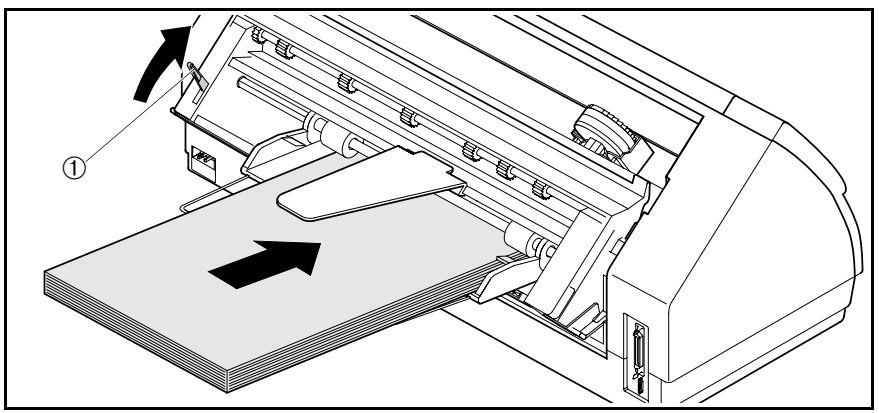
Press the single sheet feeder down until it clicks into place (approx. 5 mm).

Inserting paper



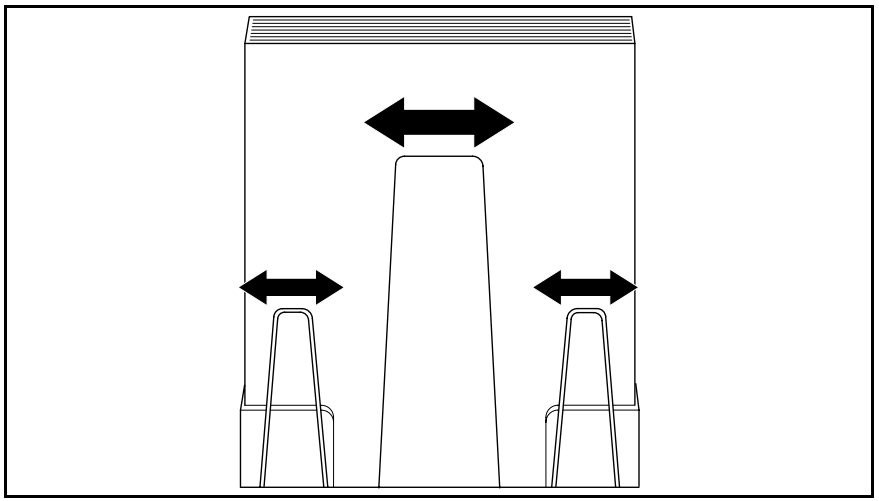
Align the left-hand paper guide (viewed from the front side of the printer) with the mark for the left-hand printing position to ensure that the first character is printed on the paper.



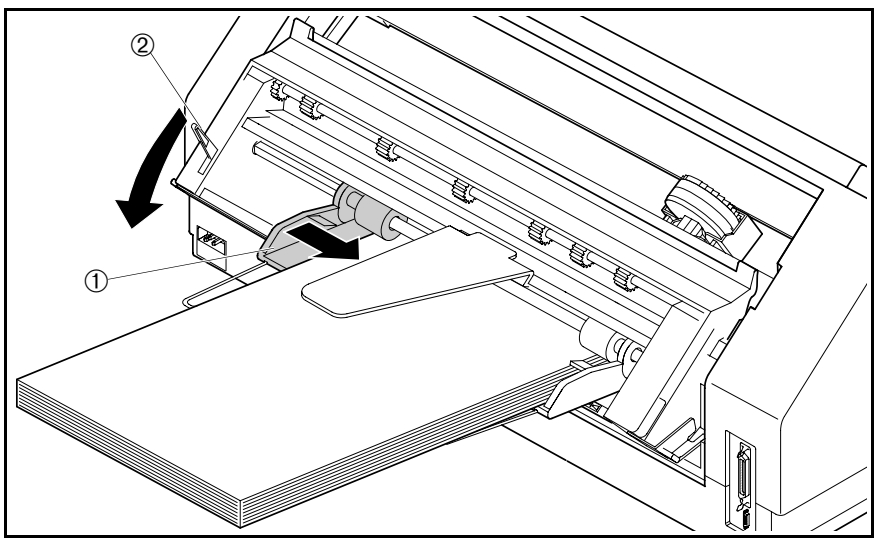


Fan the paper and then align the edges before loading it into the paper tray.

Raise the fixing lever ① and insert the paper stack.

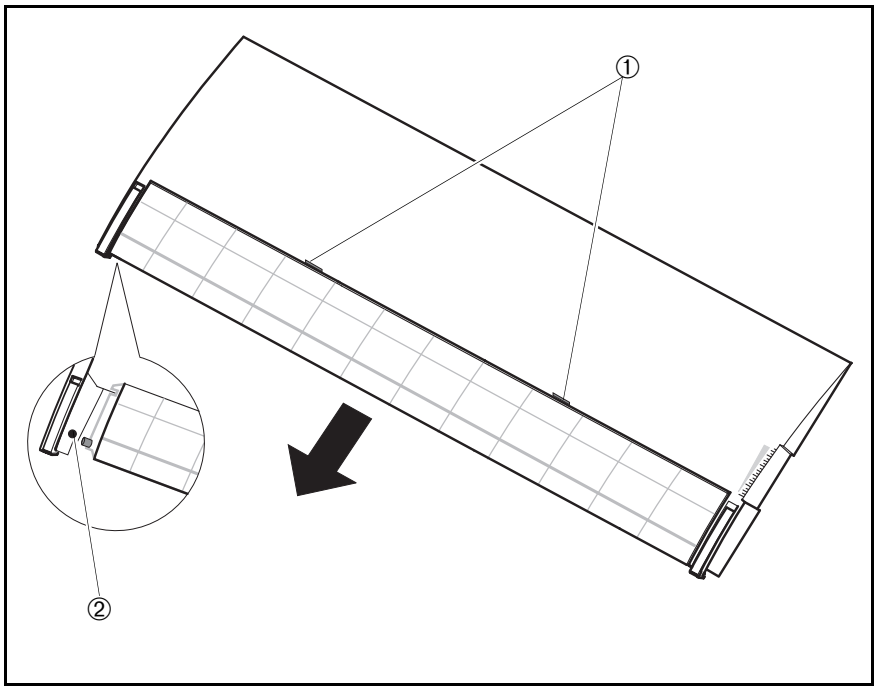


Align the paper support(s) with the centre of the paper stack. Adjust the left and right extensions to the paper length.



Adjust the right-hand paper guide ① to the width of the paper used.

Close the fixing lever ②.



It is recommended to remove the tear edge from the top cover when using thick forms. To remove the tear edge, hold it in the middle and pull it towards the rear until the locking tabs ① slide out of their locations. Then bend the tear edge slightly to remove it from the left and right holders ②.
Remount the top cover.

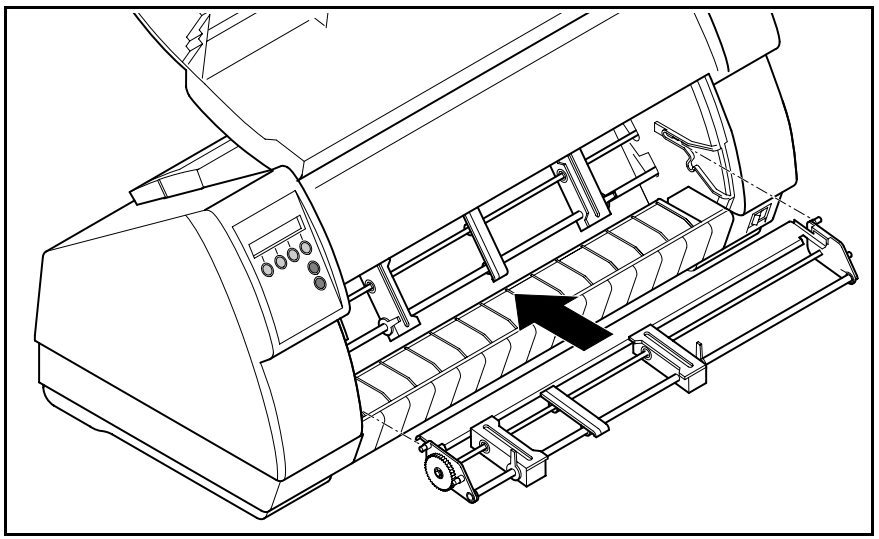
Press the **Online** key to set the printer to ready status. When the printer receives data from the computer, the first sheet is automatically loaded. Press the **Load** key to load a sheet before starting the printout.

➤ Tractor 2

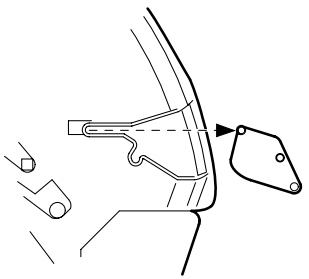
■ Preparing the printer

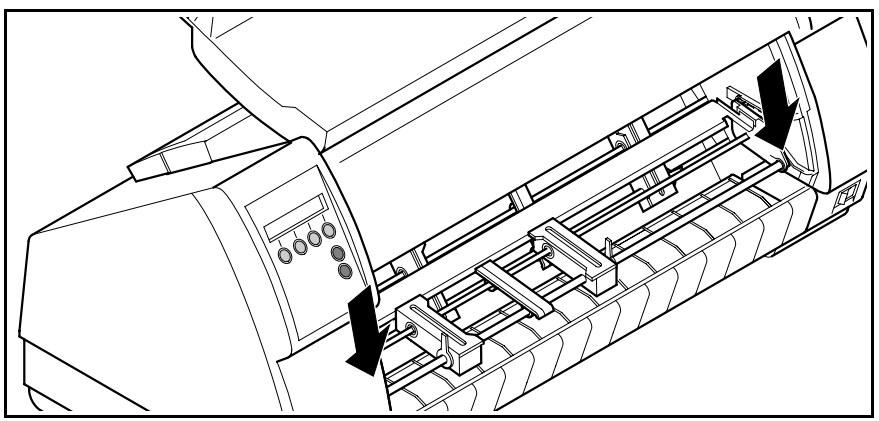
Select the **Tractor2** parameter with the paper path quick selection feature (see chapter *Settings [I]*, *Paper path quick selection*), in the Setup menu of the printer (see chapter *The menu*) or via an application program.

Installing the tractor 2



Raise the front cover.
Installation must be performed with the gear on the tractor on the left side.
Insert the tractor 2 with the pins on the left and right in parallel to the stop into the guides provided on the printer.





Press the tractor down until the front pins click into place on the left and right.

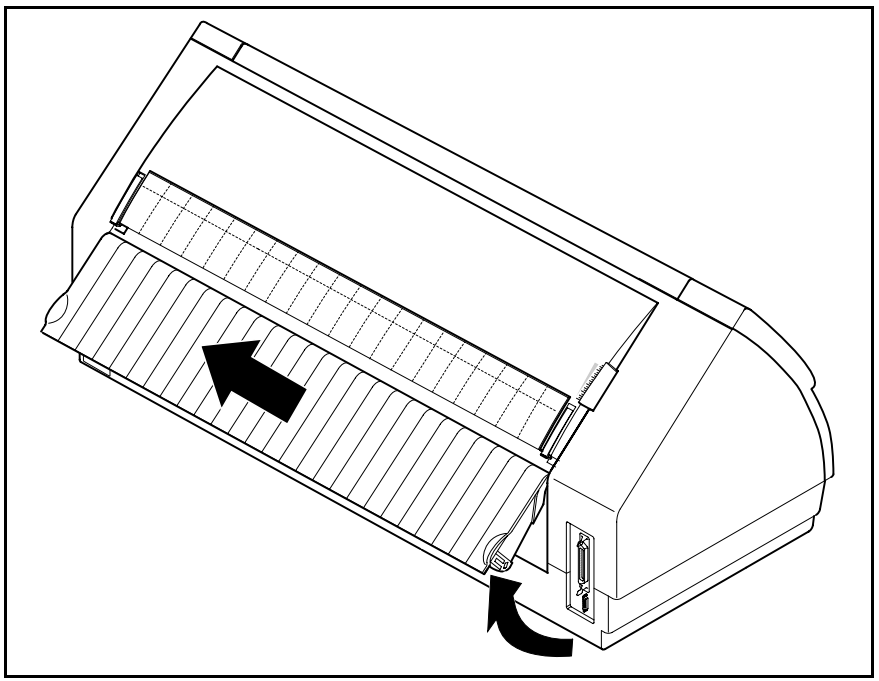
Loading paper is described in chapter *Loading paper*.

Tractor 3

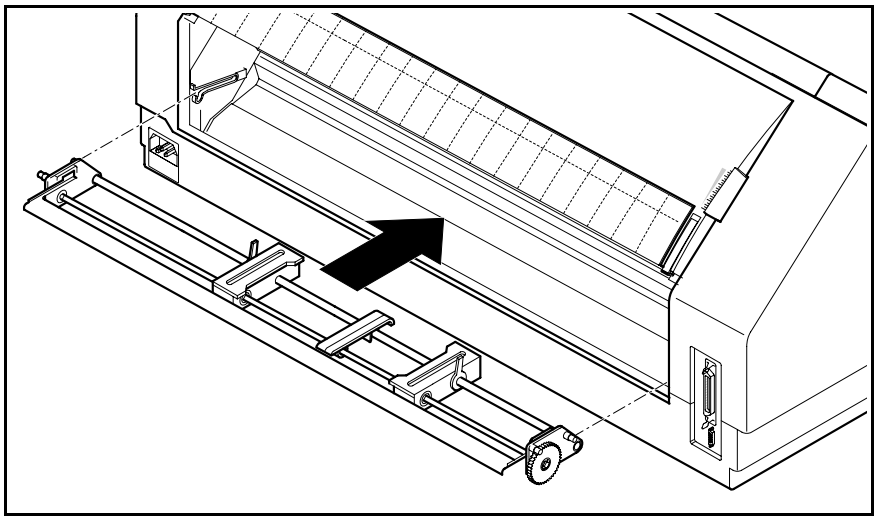
Preparing the printer

Select the **Tractor3** parameter with the paper path quick selection feature (see chapter *Settings [I]*, *Paper path quick selection*), in the Setup menu of the printer (see chapter *The menu*) or via an application program.

Installing the tractor 3

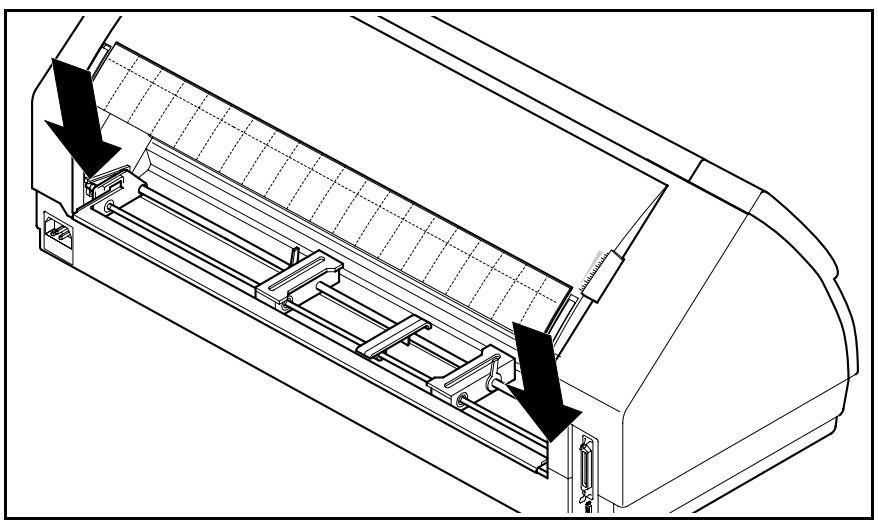


Raise the rear cover so that it is aligned with the printer top side and remove it.



Installation must be performed with the gear on the tractor on the left side (viewed from the front side of the printer).

Insert the tractor 3 with the pins on the left and right in parallel to the stop into the guides provided on the printer.



Press the tractor down until the rear pins click into place on the left and right.

Loading paper is described in chapter *Loading paper*.

Paper specifications

Continuous paper, tractor 2, single-layer	
Weight	60 to 120 g/m^2
Paper width	76 to 264 mm *(narrow printer)* 76 to 406 mm *(wide printer)*
Form length	76 to 559 mm
Continuous paper, tractor 2, multi-layer (to be tested individually!)	
Copies	1 + 5
Weight of original	45 to 65 g/m^2
Weight of copies	45 to 56 g/m^2
Weight of the last sheet	45 to 65 g/m^2
Thickness (max.)	0.6 mm
Paper width	76 to 264 mm *(narrow printer)* 76 to 406 mm *(wide printer)*
Form length	76 to 559 mm

Continuous paper, tractor 3, single-layer	
Weight	60 to 90 g/m^2
Paper width	76 to 264 mm *(narrow printer)* 76 to 406 mm *(wide printer)*
Form length	76 to 559 mm
Continuous paper, tractor 3, multi-layer (to be tested individually!)	
Copies	1 + 1
Weight of original	45 to 65 g/m^2
Weight of the last sheet	45 to 65 g/m^2
Thickness (max.)	0.28 mm
Paper width	76 to 264 mm *(narrow printer)* 76 to 406 mm *(wide printer)*
Form length	76 to 559 mm

Single sheet, ASF-F, single-layer	
Weight	90 to 180 g/m^2
Paper width	100 to 223 mm *(narrow printer)* 100 to 365 mm *(wide printer)*
Form length	100 to 305 mm
Single sheet, ASF-F, multi-layer (to be tested individually!)	
Copies	1 + 3
Weight of original	50 to 60 g/m^2
Weight of copies	45 to 56 g/m^2
Weight of the last sheet	50 to 60 g/m^2
Thickness (max.)	0.46 mm
Paper width	100 to 223 mm *(narrow printer)* 100 to 365 mm *(wide printer)*
Form length	100 to 305 mm
Envelopes	
Width	100 to 223 mm *(narrow printer)* 100 to 365 mm *(wide printer)*
Length	100 to 305 mm
Thickness	0.32 mm
Paper capacity	max. 50 sheets 80 g/m^2

Single sheet, ASF-R, single-layer	
Weight	80 to 90 g/m^2
Paper width	100 to 223 mm *(narrow printer)* 100 to 356 mm *(wide printer)*
Form length	100 to 305 mm
Single sheet, ASF-R, multi-layer (to be tested individually!)	
Copies	1 + 2
Weight of original	50 to 60 g/m^2
Weight of copies	45 to 56 g/m^2
Weight of bottom sheet	50 to 60 g/m^2
Thickness (max.)	0.25 mm
Paper width	100 to 223 mm *(narrow printer)* 100 to 365 mm *(wide printer)*
Form length	100 to 305 mm
Envelopes	No envelopes
Paper capacity	max. 100 sheets 80 g/m^2

Accessories

Ribbon cassettes

The following ribbon cassettes may be ordered:

Ribbon cassette black, narrow printer
Part no.: 060 426

Ribbon cassette black, wide printer
Part no.: 060 425

Optional paper support
Part no.: 052 127

Programmer's application manuals

Programmer's application manual Epson
Part no.: 379 302

Programmer's application manual IBM
Part no.: 379 306

Folder for Programmer's application manual
Part no.: 389 865

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